

RECENTLY PATENTED INVENTIONS.

Of Interest to Farmers.

WRISTLET.—R. N. THOMAS, Shenandoah, Iowa. This wristlet comprises a sheet of flexible material such as leather, and is provided at one end near each side thereof with a series of four parallel slits, and straps are connected with the sheet by means of the slits. The straps are of sufficient length to pass entirely around the wrist when in place, and extend from their point of connection beneath the sheet and out through the opening, and thence around the outer surface of the wristlet to engagement with the buckle.

Of General Interest.

CABLE-GRIP.—T. W. TILLEY, Bellingham, Wash. This invention relates to cable grips adapted for use in hauling logs and other loads. One object is to provide a grip having means which will grip the cable in an increasing degree as the load to be moved increases. Another object is to provide gripping means which are equally effective irrespective of the direction in which the cable is being hauled.

BAND-STAMP.—A. H. MERRILL, Ocean Springs, Miss. The stamp is especially adapted for use in entering lists of names on either books or papers, or both, as for instance pay rolls. In the present device a stamp is provided for each name and it is evident that the impression from each individual stamp may be repeated as many times as desired. In case the name of an employee is no longer used for any reason, it may be removed from the belt, and another substituted therefor.

ROAD-CULVERT.—L. BLAKESTAD and O. A. ANDERSON, Lyle, Minn. The improvement relates to road culverts and the object is to provide means for joining culvert members together, the means producing a much stronger culvert than other devices now in use. In this culvert the joints of the members are reinforced with cleats which are fastened together and are also fastened to the members.

SAND-BLAST APPARATUS.—D. A. NICHOLS, New York, N. Y. The purpose of the invention is to provide a blast apparatus in which the flow of sand from the container or reservoir to the air blast pipe can be regulated and controlled with exactness, and in which the flow of the sand from the container is assisted by the equalizing pressure pipe communicating with the air blast pipe and discharging within the container near the top of the same.

Hardware.

BOARD-SETTING TOOL.—W. R. HARRIS, Pelican, La. More particularly the invention relates to board setting tools such as are adapted for the forcing of floor boards, ceiling boards, or the like, tightly together, and which are provided with levers carrying setting blocks and spurred body members adapted to engage the joists and pivotally to carry the levers.

Heating and Lighting.

GAS LIGHTING AND EXTINGUISHING APPARATUS.—O. H. HINDS, Le Mars, Iowa. By this invention, Mr. Hinds seeks to provide a novel construction whereby a temporary increase of pressure in the gas supply pipe or main may operate to open or close the supply valve leading to the burner or burners whereby the burner may be lighted or extinguished by the opening or closing of its supply valve.

Household Utilities.

BEDSTEAD.—G. T. BOUSLOG, Raymond, Miss. The invention relates to improvements in bedsteads, and more particularly in what are known as iron bedsteads, so that an adjustable post and rail construction is provided. The object is to provide a device which is provided with rails adapted to be horizontally adjusted with respect to the corner posts.

BATH-CABINET.—T. PAWORTH, Portland, Ore. The object of the inventor is to provide a cabinet adapted to be removably mounted upon a bath-tub, and having an apron secured to the cover of the cabinet and depending into the tub to prevent water from escaping over the rim of the tub. Means provide for regulating the quantity of vapor within the cabinet, and controllable by the user from within the cabinet.

RECEPTACLE FOR MATCHES.—J. H. EVERS, New York, N. Y. One object of this improvement is to provide a receptacle which can be hung upon a wall or other support, or can be placed upon a table or the like, which is so formed that a telescopic box of matches can be inserted into the casing whereby it is opened to allow matches to drop into an open pocket from which they can be taken one at a time as needed.

Pertaining to Vehicles.

RIM-TIGHTENER FOR VEHICLE-WHEELS.—J. HAMILTON, Weir, Kan. The invention relates to wheels and improved means for tightening the rims. It comprehends means for securing together the abutting ends of the rim and for moving these ends relatively to each other for the purpose of tightening and loosening the rim in order to facilitate its removal, replacement, or its fitting while in position.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.



Full hints to correspondents were printed at the head of this column in the issue of November 14 or will be sent by mail on request.

(12011) B. F. M. says: Please give me the best definition of the term "candle-power." We understand the relative meaning of candle-power to be the intensity of light as measured by the photometer on a horizontal plane one foot from the lamp, the same as given in all directions from the lamp, but how do we arrive at the phrase 16 candle-power, 32 candle-power, 50 candle-power, etc.? A. One candle is the light given by a standard candle. This is in England and America made of spermaceti, cylindrical in form, 3/4 inch in diameter, and of such a length that it weighs a pound. It burns 120 grains per hour. A 16-candle lamp gives 16 times as much light as this candle does at the same distance, or the same light at four times the distance. The word "power" has simply been attached to the name candle. It is not necessary. A lamp giving 16 candles is said to have 16 candle-power; that is, it is able to illuminate as well as 16 candles would do in the same place. It is not a unit of light. It is the unit of illuminating power.

(12012) J. J. G. asks: Will you kindly explain to me a phenomenon which I have noticed during the eclipse of the sun? At the time the sun is crescent shape, the light falling on the floor after having passed through a window-pane assumes the form of a multitude of crescents. I have never seen an explanation of this phenomenon. I have never seen even an indirect reference to it in any work on physics; but in a work published in 1852 by John Johnston entitled "Johnston's Natural Philosophy," at page 257, in discussing the passing of light through a small aperture a quarter of an inch square, this statement is made: "If these experiments are made during an eclipse of the sun the images will always be of the same form as the disk of the sun toward us." This is the nearest to a reference I have ever noticed. It may be that I have simply overlooked the reference, but it does not take up the question I asked of you, namely, why the light under these circumstances passing through a large glass window will throw thousands of such images on the floor. A. When the light from the sun passes through a small aperture and falls on the floor or any other flat surface nearly or quite perpendicular to the path of the rays of light, the disk seen is circular, since it is an image of the sun. The shape of the aperture through which the light comes does not affect the shape of the disk of light on the screen. The aperture may be triangular, square, round, irregular, or any other shape; the disk of light on the screen is circular when the sun's disk is a circle. The experiment may be performed with a gas burner, a small hole in a cardboard, and a white screen held in the path of the light beyond the cardboard. A very perfect image of the gas flame, inverted, will be found on the screen. The images cast through small apertures are of the same shape as the objects which cast the images. When the sun is in an eclipse the crescent-shaped sun may be seen repeated many times on the ground under trees, or on the floor of a room where the light enters through the crevices between the slats of blinds or other small openings. Ordinarily in the same situations circular disks, images of the sun, are formed. In the case mentioned above, the windows must have been rather dusty, so that the window became a series of small apertures in its effect upon the sunlight, and crescent images were seen. We should always see images of the sun on the floor but for the fact that they usually overlap each other. They are always there and may often be distinguished along the edges of a place where sunlight falls on the floor of a room. This matter is rarely mentioned in textbooks of physics now-a-days. The textbooks rarely give interesting applications of principles to occurrences in nature, but limit themselves quite too much to abstract statements of principles. Many textbooks are dry as dust for this reason. The case of images of the sun in an eclipse is to be found in Deschanel's "Natural Philosophy" under "Shadows." It would be a great improvement if all textbooks of science directed the attention of the student more to concrete applications of his study to be seen in nature, often close at hand, as in this particular case.

(12013) J. T. R. writes: I have a primary battery of eighteen cells; two series of nine connected in multiple, i.e., two positive and two negative wires connected. These are used to charge a secondary battery of three cells of chloride accumulator. The voltmeter indicates 6.6 volts at storage battery and 6.5 volts at terminals of primary battery. Is my primary battery large enough, and what should be the potential of the charging plant described above? A. A storage battery should have a charging current with a pressure of 2 1/2 volts per cell. Three cells require 7 1/2 volts. The maximum charging rate should be 6 1/2 amperes per square foot of surface of positive plate, reckoning both sides. You probably fall short in both pressure and current.

NEW BOOKS, ETC.

AERIAL WARFARE. By R. P. Hearne. With an Introduction by Sir Hiram Maxim. New York: The John Lane Company, 1908. 8vo.; pp. 230. Price, \$2.50 net.

This is an excellent volume, which goes into the construction and operation of the most successful aeroplanes and airships, and especially those used for military purposes. The author has a close acquaintance with the various air craft that have been developed during the past few years, and he describes them in a simple, non-technical manner, and tells of their performances. He afterward discusses their use in warfare, and the probable development that will be made in airships and heavier-than-air craft for this purpose. The author does not indulge in any flights of fancy, but he discusses in a sensible way the probable use that will be made of aerial craft in wars of the future. The book is illustrated with very fine half-tone engravings, and it is in every respect a high-class volume.

DIE AUSNUTZUNG DER WASSERKRÄFTE. By E. Mattern. Leipzig: Wilhelm Engelmann, 1908. Imported by the Engineering News, New York. 650 pp.; 256 ill.

Making no attempt to be didactic or to draw any conclusions from his statements of fact, the author of this work aims chiefly at the compilation of statistics regarding striking modern developments in water-power work. Whereas the German and other European works naturally receive the most attention, those of both North and South America which involve any new departures are sufficiently covered, as well as the possibilities of the Zambesi in Africa, and the developments described in the book are as representative in their selection as their description has been thorough and complete.

THE MAN WHO ENDED WAR. By Hollis Godfrey. Boston: Little, Brown & Co. Price, \$1.50.

Hollis Godfrey's "The Man Who Ended War" is the story of a monomaniac for peace, who brings about the general disarmament of nations through the destruction of their battleships by radiating a powerful gas which has the property of dissolving all metals into gas. The elaborate explanations of the manifestations of this new peculiar gas, and of the hero's scientific efforts to foil its employment, are crude and unconvincing even to one who is fond of pseudo-scientific romances. The human parts of the story are lacking in any delineation of character or of individual traits. All the leading personages in the story talk and act and feel just alike, whether they be hero or heroine, underling, or villain. The plot of this novel has the advantage of being more transparent than its descriptions of intricate scientific apparatus and of the reactions of molecules, atoms, electrocutes, or the "original units that make up the world." Thus any discerning reader is able to divine the hidden personality of "The Man Who Ended War" from the outset, so that there is no shock or surprise when the long-sought destroying angel finally reveals himself and drops dead in the act. At other points in the story, wherever any persons or objects are especially wanted, they usually turn up on the next page, and so it is with scientific manifestations.

THE LIFE OF SIR ISAAC PITMAN. By Alfred Baker. London: Isaac Pitman & Sons, 1908. 12mo.; 392 pp. Price, \$2 net.

The "Father of Phonography" received a meager education, being compelled, on account of delicate health, to leave school at the age of thirteen, and his diligent and painstaking efforts to perfect himself in the use and pronunciation of English are brought out in a most interesting manner in this "Life." Pitman's first efforts in teaching shorthand and the circumstances which led to his inventing the modern system of "sound writing" are told in a comprehensive manner. Teachers of phonography will find this book invaluable, and it will inspire all students of stenography with a high regard for their chosen vocation and a desire to attain greater proficiency in this most useful profession. The book is fully illustrated with half-tones, engravings, and cuts showing the development of phonography.

INDEX OF INVENTIONS

For which Letters Patent of the United States were issued

for the Week Ending

February 16, 1909,

AND EACH BEARING THAT DATE

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

Acetylene generator, C. R. Jenne.....	912,572
Advertising novelty, R. Naumann.....	912,402
Agitator, D. H. Sherman.....	912,628
Air and gas compressors, F. E. Norton.....	912,975
Air brake apparatus, H. M. P. Murphy, 912,317, 912,712, 912,714 to 912,717, 912,973	912,862
Air compressor, O. P. Oraker.....	912,862
Air expanding means, compressed, R. S. Cate.....	912,647
Alarm clock, C. Fesenbek.....	912,454
Album and sheets therefor, C. F. Engstrom.....	912,656
Alloy, W. G. Black.....	912,645
Animal trap, O. D. Wright.....	912,348
Animal trap, W. Maechler.....	912,863
Arch support, adjustable, F. W. Lowe.....	912,584
Automobile radiator, I. Cooper.....	912,289
Automobile shock absorber, J. C. Murdock.....	912,483
Automobile transmission mechanism, H. C. Walte.....	912,513
Automobiles and other vehicles, surface street or road railway for, M. Maginn.....	912,478
Bandages, putting up, J. E. Lee, reissue.....	12,200
Bar support, detector, J. S. Hobson.....	912,677
Baseball curver, W. W. Winquest.....	912,763
Basket, N. G. Jewell.....	912,851
Batteries, charging lead peroxid-zinc storage, R. Ziegenberg.....	912,351
Battery cell, dry, G. N. Eastman.....	912,946
Battery holder, C. T. Mason.....	912,705
Beam notching die, W. G. Reid.....	912,324
Bearing, friction roller, C. D. Rice.....	912,417
Bedstead crib attachment, W. E. Brown.....	912,445
Bedstead table attachment, M. E. Cowdrey.....	912,636
Beer cooler, triple pipe, W. Griesser.....	912,671
Beet harvester, sugar, J. Kolm.....	912,577
Belt buckle, L. L. Mallard.....	912,865
Belt, endless woven, J. Kast.....	912,474
Bevel and square, combined, O. A. Osmonson.....	912,605
Binder or loose sheet holder, temporary, H. F. Bushon.....	912,361
Bit stock, angular, S. A. Plough.....	912,886
Block. See Holst block.	
Block signaling system, N. P. Fraser.....	912,301
Blower, rotary, L. E. Fagan.....	912,549
Blowing engine, G. B. Petsche.....	912,486
Blowpipe, acetylene, H. H. Snyder.....	912,500
Bobbin, W. M. Hastings.....	912,564
Boller feeder, E. Sturgeon.....	912,756
Book cover protector, H. A. Ayvad.....	912,775
Boot and shoe reel, H. K. Manz.....	912,586
Bottle, non-refillable, Rommel & Nebeling.....	912,592
Bottle, non-refillable, Quaresima & Voll.....	912,973
Box, Dulleave & Woodrume.....	912,832
Box and sliding cover, A. Falk.....	912,653
Box carrier, ash, H. S. Bramble.....	912,444
Box covering machine, automatic, P. S. Smith.....	912,745
Box covering machine, loose wrapped, P. S. Smith.....	912,746
Brace fastener, winker, E. C. Headley.....	912,313
Bracket, J. Berbecker.....	912,789
Brake apparatus, S. G. Freund.....	912,459
Brake lever, J. H. McClaren.....	912,595
Bread slicer, Crouch & Turbryll.....	912,290
Bridle, O. B. Foster.....	912,300
Broom splints, apparatus for separating, W. S. Lang.....	912,692
Brush, C. E. Graham.....	912,306
Brush, car washer, A. L. Carroll.....	912,811
Brush holder, H. L. Zabriskie.....	912,350
Brush holder, J. P. McElroy.....	912,974
Buggy top lock, A. L. Blacklock.....	912,273
Building construction, L. K. Davis.....	912,519
Bundle tying machine, J. W. Hall.....	912,470
Bust supporter, J. M. Bodensiek.....	912,793
Butt cutter, James & Lanoux.....	912,850
Button, E. W. Haber.....	912,843
Button, collar, H. S. Hawks.....	912,958
Button for suction cups, H. R. Priest.....	912,977
Button machine, W. H. Hargraves.....	912,674
Cabinet, commodit, J. H. Boye.....	912,797
Cabinet, measuring, J. M. Sausser.....	912,896
Calculating machine, W. P. Quentell.....	912,729
Can, J. U. Barr.....	912,526
Can capping machine, V. Campbell.....	912,539
Can righting machine, S. Brower.....	912,535
Can straightening machine, R. A. Hutchison.....	912,377
Candle protector, B. F. H. Dawson.....	912,821
Car, E. S. Bucknam.....	912,983
Car coupling, J. H. Strickland.....	912,436
Car delivering apparatus, railway, H. Hoffmann.....	912,673
Car door stay roller, H. E. Keeler.....	912,382
Car fan, Fitzgerald & Devitalis.....	912,553
Car fender, automatic, H. C. Jordan.....	912,574
Car fender, street, G. H. Bolduc.....	912,530
Car seal, P. W. Ellis.....	912,947
Car, street, C. O. Birney.....	912,792
Car underframe, A. Becker, 912,275, 912,276, 912,439, 912,440	
Cars, etc., antifriction bearing for railway, E. S. Woods.....	912,519
Carbureting apparatus oil feed, A. Grandjean.....	912,468
Card follower, E. C. Holland.....	912,571
Card, record, J. MacLagan.....	912,969
Cartridge extracting and loading device, A. Bengtson.....	912,643
Casting plant, Patterson & Neumann.....	912,406
Chain construction, B. Goodman.....	912,837
Chain links, manufacturing, J. M. Dodge.....	912,982
Chair reclining attachment, F. E. Barnickie.....	912,354
Chair tilting device, M. E. Stockwell.....	912,505
Check chute guard and check, M. Mendelsohn.....	912,591
Check controlled device, K. B. Miller.....	912,397
Chimney cap, adjustable, G. H. Kramer.....	912,578
Chopper. See Food chopper.	
Chuck, E. Cook.....	912,448
Chuck, J. A. Leland.....	912,582
Chuck, automatic nipple, M. C. Seren.....	912,421
Chuck, nipple, M. C. Seren.....	912,420
Churn, W. Brockett.....	912,279
Churn, H. Johnson.....	912,852
Chute, compound, G. A. Long.....	912,389
Circuit closer, W. E. Hubbard.....	912,848
Circuit controller, R. W. Coffee.....	912,447
Clamping mechanism, J. M. Thompson.....	912,757
Clock, E. E. Dungan.....	912,833
Clock installment, watchman's, O. E. Hausburg.....	912,957
Clocks, receptacle for keys for watchmen's, F. Hardinge.....	912,312
Closet seat, E. L. Delany.....	912,824
Cloth bolt board, W. W. Taft.....	912,630
Cloth laying machine, C. C. Schneider.....	912,738
Clothes drainer, H. E. Taylor.....	912,331
Clothes line slack adjuster, A. Heisterkamp.....	912,566
Clutch, E. Bodmer.....	912,358
Clutch, E. H. Sherbondy.....	912,741
Cock, T. M. Gleason.....	912,468
Cock, ball, L. Thore.....	912,632
Cock, gage, J. Olsson.....	912,604
Cock, stop, Hoelscher & Gavin.....	912,569

Coin holder, R. W. Shaw.....	912,423
Coke ovens, v. coal, apparatus for charging, W. J. Jenkins.....	912,964
Comb, A. C. Becken.....	912,355
Concrete pipe structure, reinforced, H. R. McManon.....	912,318
Concrete tie, N. P. Brannen.....	912,663
Concrete water pipe or conduit, reinforced, J. M. Pheasant.....	912,885
Controlling mechanism for machines acting on sheets or signatures, H. P. Kendall.....	912,965
Connecting rod, J. C. Bird.....	912,791
Cooking utensil, steam, C. H. Stage.....	912,912
Copy holder, W. A. Olive.....	912,405
Corset, C. H. Schopbach.....	912,624
Corset, maternity, H. S. Anderson.....	912,789
Cotton chopping machine, E. A. McReynolds.....	912,875
Cotton press tamping device, S. S. Ray.....	912,889
Coupling or connector, W. E. Benson.....	912,788
Crane, radius counterbalance, W. Van Wie.....	912,335
Crane, G. E. Jackson.....	912,682
Crate, banana, J. Albertelli.....	912,437
Cultivator, J. T. Miller.....	912,870
Culvert pipe, C. O. Wold.....	912,638
Curtain holder, C. H. Keyes.....	912,854
Curtain ring, ball bearing, J. W. Leslie.....	912,476
Cyanid briquets, making, J. Bueb.....	912,538
Dampening machine, J. W. Miller.....	912,592
Daubner, R. L. McMurrin.....	912,719
Dental articulator, G. B. Snow.....	912,748
Dental matrix clamp, S. S. Carleton.....	912,810
Desk table, H. Haberkorn.....	912,572
Dispensing apparatus, P. C. Nestor.....	912,603
Distributor, R. Jardine.....	912,683
Ditch digging machine, J. Emberton.....	912,937
Ditching machine conveyor, I. N. Long.....	912,390
Doll, sleeping, I. O. Wear.....	912,637
Door bolt operating means, J. Jackson.....	912,379
Door fastener, sliding, D. W. Alderman.....	912,930
Door fastening means, J. Jackson.....	912,378
Door knob or handle lock, A. Marlon.....	912,587
Door lock, F. P. Fischer.....	912,834
Door spring, A. M. Barnett.....	912,933
Door stop, E. C. Scruggs.....	912,326
Doubling and winding machine, Hoyle & Barker.....	912,847
Dough molding machine, Loesch & Bohme.....	912,695
Draft equalizer, N. Fryman.....	912,611
Draw bar carrier, A. D. McWhorter.....	912,876
Draw gear or draft rigging, A. E. Ostrander.....	912,723
Drawer drop, H. Smithson.....	912,328
Drawer lock, E. C. Holland.....	912,570
Drawing line, L. A. Donohue.....	912,830
Driving mechanism, variable speed, R. M. Ruck.....	912,736
Drum beater, C. W. & A. H. Nuss.....	912,404
Duplex or master key lock, P. F. Augenhorn.....	912,773
Dust separator, C. H. Keeney.....	912,686
Dusting and sweeping appliance, pneumatic, C. J. Harvey.....	912,956
Dye, azo, A. Bergdoll.....	912,356
Earth closet, R. Kooms.....	912,856
Eccentric, shifting, P. Giebler.....	912,836
Egg case, M. E. Van Loven.....	912,922
Eggs, preserving, J. D. Smithers.....	912,909
Electric conductor, S. G. Brown.....	912,801
Electric generator, dynamo, J. O. Heinze, Jr.....	912,565
Electric light socket, M. Norden.....	912,720
Electric log, J. H. Cuntz.....	912,291
Electric machine feed structure, dynamo, A. E. Field.....	912,551
Electric motor controller, R. L. Munson.....	912,871
Electrical apparatus, coin controlled, A. W. Roovers.....	912,734
Electrical clutch and brake, Steckel & Thomson.....	912,504
Electrical device or machine, coin controlled, J. Weiner.....	912,924
Electrolytic cell for separating constituents of a mixture of metal or an alloy, H. Lacroix.....	912,859
Elevator safety device, W. P. Groom.....	912,560
Engine, etc., indicator, steam, B. H. Hopkinson.....	912,680
Engine governor speed regulating device, J. E. Kimble.....	912,689
Engine packing, rotary, M. H. Hulings.....	912,963
Engine reversing gear, A. Runnon.....	912,893
Excavator, C. H. Caleson.....	912,806
Explosive engine, C. M. Steely.....	912,751
Extension clamp, A. L. Cobb.....	912,543
Extractor, S. Percolator and extractor, Fan, F. Gerber.....	912,464
Fan and pump, centrifugal, G. M. Capell.....	912,362
Feed bag, K. L. W. Grasnack.....	912,952
Feed bag support, E. S. Elliot.....	912,548
Fence post and anchor therefor, N. Biberstine.....	912,790
Fence stretcher, Haynes & Cocker.....	912,431
Fertilizer distributor, W. P. Smith.....	912,431
Fiber, apparatus for handling the electrolytic products of brine in the treatment of, Wentworth & Larchar.....	912,339
Fiber, handling the electrolytic products of brine in the treatment of, Wentworth & Larchar.....	912,340
File, account, Schmidt & Huwe.....	912,419
Filling material for reaction spaces, O. Guttman.....	912,310
Filter plate, pressure, C. W. Merrill.....	912,867
Fire extinguishing system, automatic, J. B. Ervin.....	912,370
Fishing rod, J. B. Fischer.....	912,552
Fixture joint, sanitary, E. C. Stover.....	912,753
Flat iron, electrically heated, Holley & Root.....	912,471
Flour packer auger attachment, J. Pullinger.....	912,410
Flower pots and like articles, detachable hall for, G. B. Hart.....	912,472
Flue dust in blast furnaces and preventing the formation of the same, effecting the precipitation of, Atcherson & Stoddard.....	912,641
Fluid clutch mechanism, C. W. Dodge, Jr.....	912,652
Fluid gage, M. Martin.....	912,393
Fluid pressure cushioning device, C. E. Squires.....	912,502
Flushing tank, A. R. Gilmore.....	912,665
Food chopper, S. R. Munson.....	912,482
Foot and body warmer, portable, F. Batter.....	912,527
Force feed lubricator, C. C. Wakefield.....	912,337
Fruit packing device, E. F. McLaughlin.....	912,874
Fuel, artificial, Foreman & Thornton.....	912,564
Fur stretcher, adjustable, H. P. Hansen.....	912,311
Furnace, S. Dewhurst.....	912,828
Furnace casting apparatus, blast, M. Killen.....	912,688
Furnace fuel conveyor, E. Anderson.....	912,931
Furnace pan, T. C. Evans.....	912,980
Furnace regulating mechanism, A. W. Pundington.....	912,616
Furnaces, device for the consumption of smoke in, A. Gropengieser.....	912,413
Furniture, school, W. Redmond.....	912,413
Gaiter, H. Cohen.....	912,283
Game apparatus, G. W. L. Edwards.....	912,547
Game apparatus, J. Graves.....	912,953
Game apparatus, coin controlled, R. F. Downey.....	912,654
Garment band, adjustable, C. E. Baker.....	912,642
Garment fastener, G. H. Maurer.....	912,707
Garment hanger, A. E. Larson.....	912,388
Garment receptacle attachment, G. H. Wheary.....	912,342
Garment supporter, C. J. White.....	912,517
Garter, W. M. McCafferty.....	912,718
Gas burner, W. V. D. Kelley.....	912,576
Gas burner, three-way natural, J. O'Neill.....	912,881
Gas fixture adjustable pilot light attachment, G. Gilcher.....	912,304
Gas from coal, manufacturing, R. Thiemlich.....	912,509
Gas generator, acetylene, G. E. Johnson.....	912,800
Gas manufacturing and mixing apparatus, Loomis & Pettibone.....	912,698
Gas producer, G. Hatton.....	912,373
Gas producer, E. Lawrence.....	912,580
Gas purifying apparatus, J. Levey.....	912,694
Gas retorts, etc., apparatus for discharging coal, C. Hollander.....	912,679
Gases to gas engines, making and delivering mixed, Loomis & Pettibone.....	912,699
Gasoline engine, rotary, D. H. Thompson.....	912,332
Gate fastener, J. H. Tschirley.....	912,333
Gear cutting machine, W. Yates.....	912,439
Gear operating device, P. Schorno.....	912,494
Gear, reversing, W. A. Slusher.....	912,498
Gear, running, W. Shaw.....	912,424
Gearing, multiple speed, N. B. Runnals.....	912,418
Glass etching machine, A. B. Knight.....	912,386
Glass goods, manufacture of ornamental, C. C. Sibley.....	912,426
Glass, wired, E. B. Gibert.....	912,950

The Best Results

can only be obtained with the best aids. Hence the success always attending the use of our

"STAR" LATHES

which are the result of practical knowledge and long experience in machine tool building. Repeat orders from home and foreign governments attest the high quality of these lathes. Write for catalogue "B."

THE SENECA FALLS MFG. CO.
635 Water St., Seneca Falls, N. Y.

Engine and Foot Lathes

MACHINE SHOP OUTFITS, TOOLS AND SUPPLIES. BEST MATERIALS. BEST WORKMANSHIP. CATALOGUE FREE

SEBASTIAN LATHE CO., 120 Culvert St., Cincinnati, O.

Veeder Counters

to register reciprocating movements or revolutions. Cut full size. Booklet Free.

VEEDER MFG. CO.
18 Sargeant St., Hartford, Conn.

Cyclometers, Odometers, Tachometers, Counters and Fine Castings.

Represented in Great Britain by Messrs. MARKE & CO., Ltd., 6 City Road, Finsbury Square, London, E. C., England.

Reduces Gas Bills

Our GAS CONTROLLER stops that Blowing and Breaking Mantles and will actually save you 15% to 30% on every gas bill. We guarantee it.

Agents Wanted. Lasts a lifetime and needs no attention. No expense after attached. Drop a postal and let us send prices. Write us today. References, any bank in Chicago.

Gas Users Association, 573 Madison Street, Chicago

THIS GRINDER

Has no pumps, no valves. No piping required to supply it with water. Always ready for use. Simplest in construction, most efficient in operation. Price will interest you.

W. F. & J. W. BARNES CO.,
Established 1872.
1999 Ruby St., Rockford, Ill.

Have You Seen The Perfection Wrench?

The newest and best wrench made. All steel. Great strength. Instantly adjusted. Easily and quickly operated. Positive grip. Immense time, trouble and temper saver. Indispensable to Automobiles. Best "all round" tool ever offered for sale. Must be seen to be appreciated. "You'll want one when you see it." For circular address

THE PERFECTION WRENCH COMPANY
Box 426 G, Port Chester, N. Y.

JAGER Marine 4-Cycle Engines

Skillfully designed and well built. Single lever control, combining automatic carburetor with spark advance. Develops wide speed range and reliability under most trying conditions. Sizes 3 to 60 h. p. Send for catalog.

CHAS. J. JAGER CO.
281 Franklin, cor. Battery March St. Boston, Mass.

GILSON ENGINE

GOES LIKE SIXTY
SELLS LIKE SIXTY
SELLS FOR SIXTY

For Pumping, Cream Separators, Churns, Wash Machines, etc. FREE TRIAL. Ask for catalog-all sizes.

GILSON MFG. CO. 308 Park St. Port Washington, Wis.

Instructive Scientific Papers

ON TIMELY TOPICS

Price 10 Cents each by mail

ARTIFICIAL STONE.

By L. P. Ford. A paper of immense practical value to the architect and builder. SCIENTIFIC AMERICAN SUPPLEMENT 1500.

THE SHRINKAGE AND WARPING OF TIMBER.

By Harold Busbridge. An excellent presentation of modern views; fully illustrated. SCIENTIFIC AMERICAN SUPPLEMENT 1500.

CONSTRUCTION OF AN INDICATING OR RECORDING TIN PLATE ANEROID BAROMETER.

By N. Monroe Hopkins. Fully illustrated. SCIENTIFIC AMERICAN SUPPLEMENT 1500.

DIRECT-VISION SPECTROSCOPES.

By T. H. Blakesley, M.A. An admirably written, instructive and copiously illustrated article. SCIENTIFIC AMERICAN SUPPLEMENT No. 1493.

HOME MADE DYNAMOS.

SCIENTIFIC AMERICAN SUPPLEMENTS 161 and 600 contain excellent articles with full drawings.

PLATING DYNAMOS.

SCIENTIFIC AMERICAN SUPPLEMENTS 720 and 793 describe their construction so clearly that any amateur can make them.

DYNAMO AND MOTOR COMBINED.

Fully described and illustrated in SCIENTIFIC AMERICAN SUPPLEMENTS 844 and 865. The machines can be run either as dynamos or motors.

ELECTRICAL MOTORS.

Their Construction at Home. SCIENTIFIC AMERICAN SUPPLEMENTS 759, 761, 767, 641.

Price 10 Cents each, by mail

Order through your newsdealer or from

MUNN & COMPANY
361 Broadway New York

Grain products to composite forms of food, machine for reducing, H. D. Perky.....	912,976	Piano hammer, J. W. E. Laker.....	912,860
Grease cup, P. G. Leistner.....	912,693	Piano practice muffler, E. J. Dawson.....	912,294
Grinding machine feed table, J. Miller, Jr.....	912,593	Picture mount, H. D. Sterrick.....	912,329
Grinding machine, lens, L. Wilhelm.....	912,518	Pie trimmer and crimper, E. G. Minnehan.....	912,709
Gun, spring, H. C. Laufermiller.....	912,968	Pile driver, W. J. Hoy.....	912,962
Hair curler, F. A. Goodykountz.....	912,839	Pile or plush fabric, R. H. Gleahill.....	912,666
Hair waving iron, J. C. Bradley.....	912,531	Pipe cap, vent, G. J. Debu.....	912,823
Harmonograph adjusting device, J. F. Nelson.....	912,877	Pipe carrier foundation top, C. L. & L. C. Stueber.....	912,629
Harness maker's stitching horse, H. J. Bowman.....	912,795	Pipe coupling, E. W. Adams.....	912,929
Harness shaft loop, W. N. Heaton.....	912,374	Pipe elbow, sheet metal convertible, H. F. Veshard.....	912,944
Hay and manure gatherer and loader, J. Peterson.....	912,611	Pipe thread protector, J. T. Duff.....	912,336
Hay stacker, F. M. Tinsley.....	912,510	Piston leak obviating means, H. M. P. Murphy.....	912,713
Heat generator, A. Noetel.....	912,879	Pitman connection, W. C. Benson.....	912,277
Heating apparatus, portable hot fluid, H. T. Otterdinger.....	912,320	Placer machine, J. R. Wood.....	912,766
Heating system, low pressure fluid, E. H. Gold.....	912,467	Planter, J. R. Miller.....	912,396
Heel, H. R. Manz.....	912,479	Planter marker lifter, L. McDaniel.....	912,484
Heel pad, Kreh & Bruns.....	912,370	Planter, seed, S. F. Dykes.....	912,296
Hicky, L. McCarthy.....	912,594	Planter, seed, W. A. Rockwell.....	912,891
High speed brake, W. B. Mann.....	912,392	Plaster board, K. Friedman, et al.....	912,664
Hoist block, W. G. Stephan.....	912,434	Plow and scraper, W. A. Campbell.....	912,808
Horse releaser, G. J. Weyh.....	912,515	Plow, wheeled, W. S. Graham.....	912,307
Horses and cattle in case of fire, device for releasing, G. W. Mayberry.....	912,972	Pneumatic spring, W. H. Humphreys.....	912,376
Horseshoe, E. K. Powell.....	912,614	Potato digger, J. D. Wilcox.....	912,344
Horseshoe, Moser & Schwaiger.....	912,711	Potato planter, O. W. Fisher.....	912,457
Horseshoe and calk, S. Gordon.....	912,067	Poultry, C. R. L. Davis.....	912,820
Horseshoe, soft tread, F. C. Limbocker.....	912,583	Power transmitter, D. Williamson.....	912,345
Hose and pipe coupling, union, W. L. Caniff.....	912,809	Printing frame, N. H. Baird.....	912,524
Hose clamp, T. Harber.....	912,955	Printing gage, W. Duke, Sr., and W. Duke, Jr.....	912,940
Hose rack, R. D. Wirt.....	912,928	Printing press, G. E. Panceast.....	912,724
Hulling machine, rice, F. G. Dieterich.....	912,449	Printing press, J. E. Angel.....	912,771
Hydrocarbon burner, A. W. Straight.....	912,506	Printing press adjustable platen, C. A. Pinkham.....	912,727
Ice cream freezer, T. M. Belknap.....	912,787	Projection apparatus, W. F. Folmer.....	912,299
Ice machine, J. C. McCall.....	912,873	Pump, expansible, C. F. Benjamin.....	912,442
Ignition timer, C. Sintz.....	912,906	Pump, L. R. Bulliam.....	912,386
Incinerator, G. Allen.....	912,521	Pump, connection, C. L. Bastian.....	912,274
Indicator, See Engine, etc., indicator.....	912,521	Pump head, H. F. Story.....	912,984
Indicator for hire or other vehicles, automatic fare, A. Seiman.....	912,899	Pump, multiple impeller, A. E. Guy.....	912,954
Inhaler, P. W. Shute.....	912,742	Pump packing, liquid, J. V. O. Palm.....	912,321
Ink well, O. Noll.....	912,880	Pump piston, water, E. O. Frisk.....	912,460
Insecticide or like materials, machine for distributing dry, T. D. Ware.....	912,635	Pumping power, F. M. Lee.....	912,475
Insulator for electrically charged wires, S. J. Conrad.....	912,364	Purifier attachment, moldings, D. Deneen.....	912,649
Insulator, high tension, J. K. Soden.....	912,501	Purse, C. Eninger.....	912,451
Internal combustion engine, C. E. Duryea.....	912,546	Topographical device, E. H. E. Malmquist.....	912,916
Iron and steel, melting pig, H. A. Evans.....	912,298	Rail, block, and riveadent.....	912,616
Iron, torch, and portable light, combined soldering, A. Harf.....	912,673	Rail clamp, guard, C. E. Scroggs.....	912,626
Ironing board, W. J. Nelson.....	912,319	Rail, guard, J. Ferguson.....	912,453
Ironing board, J. Kepple, Jr.....	912,853	Rail joint, G. Seemann.....	912,495
Ironing machine, T. A. Elphick.....	912,450	Rail joint, J. Giczewski.....	912,558
Joining machine, Thomas & Solem.....	912,918	Rail joint, A. L. Stanford.....	912,750
Kill chain tension device, sintering, C. H. Fettel.....	912,550	Rail joint, H. S. Shafer.....	912,901
Kinematograph, H. J. Crudge.....	912,365	Rail joint, E. A. Stark.....	912,913
Knife attachment, C. J. Haglund.....	912,469	Rail joint, E. C. Winbrough.....	912,926
Knockdown box or case, J. Q. Matthews.....	912,590	Rail joint, compromise, V. C. Armstrong.....	912,640
Lace holder, C. Nesbit.....	912,602	Rail, resilient guard, guard, Reinhold & Weaver.....	912,618
Ladder, combination extension and step, P. C. Plasterer.....	912,469	Rail stay, J. M. Vail.....	912,334
Lamp alarm, signal, W. K. Sparrow.....	912,433	Railway block signal system, J. P. France.....	912,371
Lamp burner attachment, C. Z. Davis.....	912,818	Railway car safety air brake appliance.....	912,371
Lamp extinguisher, Maes & Armijo.....	912,864	Bacot & Arden.....	912,932
Lamp fixture, electrical, N. Weeks.....	912,404	Railway collision preventing device, F. Wolf.....	912,346
Lamp socket, plural, R. B. Benjamin.....	912,529	Railway frog, Reinhold & Weaver.....	912,619
Lathe feed mechanism, J. R. Perrine.....	912,609	Railway rail and crossing, Reinhold & Weaver.....	912,621
Lawn sprinkler, R. C. Sanders.....	912,493	Railway safety brake device, J. F. Howard.....	912,620
Lawn trimmer, J. R. Place.....	912,408	Railway switch, and controlling mechanism, Florida, C. Zorge.....	912,662
Lemon squeezer, A. J. Bennett.....	912,443	Railway switch, A. C. Mather.....	912,480
Lifting jack attachment, Sasser & McDonald.....	912,737	Railway switch, G. Lange.....	912,861
Lime, apparatus for making sucrate of, J. F. Pool.....	912,887	Railway switch, street, Snell & Dole.....	912,747
Line holder, J. N. Landry.....	912,387	Railway tie, L. J. Riegler.....	912,731
Liquid feeding device, W. F. Bostock.....	912,794	Railway tie and rail fastener, metallic, Voegel & Rosenberg.....	912,761
Liquid cooler, rotatable, Brunner & Higgins.....	912,281	Railway tie and rail fastener, combined metallic, Voegel & Rosenberg.....	912,761
Loading machine, F. K. Holmsted, reissue.....	912,919	Railway tie, steel, Beaumont & Snowdon.....	912,785
Lock, Sohni & Mehl.....	912,910	Railway tracks, means for leveling and finishing surfaces of ballasted, T. S. Cafferty.....	912,282
Locomotive, articulated, S. M. Vauclain.....	912,923	Ratchet wrench, G. Baldwin.....	912,777
Locomotive engines, H. W. Garratt.....	912,303	Ratchet wrench, combination, F. E. Walden.....	912,338
Locomotive mattress, integral, R. V. Mattison, Jr.....	912,971	Razor, safety, P. H. Unsinger.....	912,633
Loom, J. J. Grogan.....	912,306	Refrigeration system, R. F. Massa.....	912,866
Loom, automatic filling replenishing, M. L. Stone.....	912,435	Refrigerator, G. Mey.....	912,868
Loom filling stop signaling device, A. E. Rhoades.....	912,415	Register, new vehicle fare register.....	912,544
Loom let-off mechanism, J. Northrop.....	912,722	Registering mechanism, J. Cross.....	912,305
Loom let-off mechanism, Draper & Wood.....	912,942	Resilient wheel, glaser & Olsen.....	912,532
Loom needle motion, pile fabric, J. A. Clark.....	912,648	Respirator and inhaler, combined, H. Brat.....	912,644
Loom pick ball cover, T. Nevill.....	912,403	Retort, R. Bennett.....	912,360
Loom thread parting mechanism, A. E. Rhoades.....	912,416	Reversing mechanism, H. A. Budde.....	912,770
Mail bag catching and delivering apparatus, L. A. Sipe.....	912,907	Rim engaging device, H. T. Andrew.....	912,297
Mail carrier, A. W. Riggs.....	912,979	Riveting machine, G. Ernel.....	912,315
Mailing card, coin, L. H. Clarke.....	912,446	Rotary engine, L. L. Lewis.....	912,948
Mallet, C. H. Bayley.....	912,784	Rotary engine, Ford & Helmer.....	912,630
Mangle, A. Busch.....	912,872	Saddle top roll, E. Dixon.....	912,630
Mantel panel, W. J. Gray.....	912,670	Safe, hood, C. M. Allen.....	912,732
Massage device, T. H. Midgley.....	912,708	Safe structure, G. Hattersley.....	912,473
Mat, T. C. McPherson.....	912,680	Sanitary appliance, H. G. Brott.....	912,280
Match box, R. E. Johnson.....	912,381	Sash chain guide, U. G. McQueen.....	912,401
Match safe, self-feeder, F. E. Long.....	912,607	Sash fastener, E. L. Thompson.....	912,401
Matchbox, M. Brown.....	912,536	Sash holder, G. A. Dowling.....	912,653
Mattress, filled, M. Fischman.....	912,456	Sash operating device, L. Barbieri.....	912,779
Mausoleum construction, etc., C. U. Downey.....	912,308	Saw, inserted tooth, J. A. & G. H. Auperle.....	912,774
Measuring implement, combination, E. C. Patterson.....	912,007	Sawmill dog, H. M. Lofton.....	912,686
Measuring instrument tubular spring, W. Strube.....	912,755	Scam-shifting mechanism, H. Roberts.....	912,732
Mechanical brake, D. C. Schultz.....	912,325	Seal, bag, E. J. Brooks & W. Hartley.....	912,533
Metal working machine, J. Hartness.....	912,676	Seal, snap, E. J. Brooks.....	912,534
Mill cooling device, tin sheet, P. J. Wintgens.....	912,764	Seat, convertible cushioned and non-cushioned, Barrett & Alter.....	912,781
Mixing and kneading machine, R. T. Griffiths.....	912,842	Sectional stand, F. G. Grimler.....	912,308
Molstener, W. P. Cook.....	912,815	Seedling machine automatic adjuster, H. F. Deterding.....	912,825
Mold, G. Bauer.....	912,528	Seedling machines, means for operating work, H. F. Deterding.....	912,827
Mold, L. Diaz.....	912,829	Sewer construction, block, F. L. Stomb.....	912,628
Motive power apparatus, H. K. Hess.....	912,567	Sewing lastng machine, W. Gordon.....	912,683
Motor, P. Stauch.....	912,914	Sewing machine belts, means for and method of displaying, J. H. Boye.....	912,796
Motor commutator, A. J. Pfaff.....	912,612	Sewing machine spool holder, L. Schreiber.....	912,739
Muck channel forming tunnel track and muck discharging car, combined, R. B. Sigafos.....	912,904	Sewing machine thread controlling mechanism, W. M. Ammerman.....	912,522
Music teaching device, L. A. Jaros.....	912,685	Shade bracket, extension, C. H. Luening.....	912,700
Musical instrument, pneumatic self-playing, L. B. Doman.....	912,366, 912,939	Shade roller attachment, J. V. Washburne.....	912,636
Muzzle for dogs and other animals, W. P. Marshall.....	912,703	Sharp pad, attachable, S. P. Cleary.....	912,813
Needle threader, J. K. Stockland.....	912,915	Sheet belting mechanism, R. Miehle.....	912,395
Nest, hen's, A. L. Glass.....	912,469	Sheet feeding machine, controlling mechanism, B. Gustafson.....	912,562
Nitrohydrocarbon composition, densifying, F. J. H. Rowser.....	912,733	Sheet feeding machine pile elevator, B. Gustafson.....	912,563
Nozzle, spraying, W. T. Vard.....	912,520	Sheet metal piling, interlocking, S. T. Fiero.....	912,661
Nozzle, spraying, F. & F. Koenigkramer.....	912,691	Sheet piling, A. A. Friestedt.....	912,949
Nut blank making apparatus, H. C. Graham.....	912,669	Sheet piling and means for driving or sinking the same, F. W. Skinner.....	912,496
Nut lock, B. F. Pinson.....	912,407	Sheet piling or other structural elements, locking the joints of adjacent units of, F. W. Skinner.....	912,497
Nut lock, W. H. Snively.....	912,499	Shock absorbing apparatus, W. H. Son.....	912,749
Nut lock, J. Fahner.....	912,657	Shoe lace fastener, J. W. Knause.....	912,690
Objective, W. Zschokke.....	912,352	Shoe lace snap fastener, H. S. Shafer.....	912,900
Oiler, automatic, J. L. Schrede.....	912,740	Shoe lining, J. Mitchell.....	912,398
Oil separator, electromagnet, T. Charlton.....	912,363	Shoe protector, A. Lundgren.....	912,862
Ore treating furnace, universal, C. C. Meekery.....	912,394	Show case, A. C. Ucker.....	912,921
Ores by flotation, apparatus for separating, J. F. De Bayay.....	912,783	Shredding machine, W. B. Caminade.....	912,807
Ores, roasting, H. K. Hess.....	912,568	Shuttle, W. F. Clayton.....	912,935
Ores, treating, R. McKnight.....	912,485	Sickle, J. A. Henry.....	912,375
Organ, E. Wright.....	912,767	Sign, electric, H. Ziegler & Barling.....	912,737
Oscillation detector and rectifier, G. W. Pickard.....	912,613	Sign, illuminated, M. Norden.....	912,721
Oscillation receiver, G. W. Pickard.....	912,726	Signal alarm, automatic, P. A. Brown.....	912,359
Osteopathic table, W. M. Marselles.....	912,583	Signal system, electric, V. L. Beeman.....	912,786
Package tie, H. Barry.....	912,782	Skinning and dissecting knife, F. L. Putney.....	912,411
Pad, See Heel pad, T. Yard.....	912,782	Skirt, W. & S. Epstein.....	912,834
Paper barrel staves, apparatus for making, J. T. Collins.....	912,284	Smelting, pyritic, J. T. Carrick.....	912,540
Paper barrel staves, making, J. T. Collins.....	912,285	Sodium carbonate, manufacture of hydrated, W. E. Rideour.....	912,622
Paper box covering machine, J. Aspenleiter.....	912,772	Solid matter and liquids, agitating and separating mixtures of, J. J. Carrick.....	912,541
Paper clip, C. W. Sanders.....	912,895	Sounding instruments, attachment for the horns of, O. G. Rose.....	912,735
Paper package, S. Wheeler.....	912,762	Spanner or the like, P. G. Tacchi.....	912,507
Peanut picking machine, F. F. Ferguson.....	912,835	Speed changing mechanism, B. Gmur.....	912,559
Peanut stripper, L. L. White.....	912,343	Speed mechanism, variable, P. N. Ramsey.....	912,487
Peg, turning, L. C. Becker.....	912,441	Spinning machine weight strap, E. Dixon.....	912,651
Pen, automatic fountain attachment, C. A. Faust.....	912,659	Spool holder, S. Wertheimer.....	912,341
Pencil sharpener, A. B. Bly.....	912,357	Spraying apparatus, Lameli & Hurst.....	912,960
Pencil sharpener, W. T. MacHale.....	912,391	Spraying appliance, J. C. Ryan.....	912,894
Percolator and extractor, C. Warburton.....	912,634	Spring, F. B. King.....	912,855
Phenacetin and product, treating, A. G. Meyer.....	912,869	Spring motor, H. Schroeder.....	912,625
Photographic timing apparatus, P. H. Wheeler.....	912,516	Sterilizer and irrigator, combination, M. H. Evans.....	912,452
		Stockings, knitting, J. Black.....	912,934
		Stone or concrete post mold, artificial, O. Dougherty, et al.....	912,367
		Stove auxiliary heater, W. Pett.....	912,883
		Stove, hot blast, J. L. Larimer.....	912,907
		Stovepipe, J. T. Rider.....	912,490

Classified Advertisements

Advertising in this column is 75 cents a line. No less than four nor more than ten lines accepted. Count seven words to the line. All orders must be accompanied by a remittance. Further information sent on request.

READ THIS COLUMN CAREFULLY.—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. There is no charge for this service. In every case it is necessary to give the number of the inquiry. Where manufacturers do not respond promptly the inquiry may be repeated.

MUNN & CO.

BUSINESS OPPORTUNITIES.

WE WANT TO ATTRACT THE ATTENTION of a successful man, capable of business management and unlimited executive ability, with knowledge for directing sales department and willing and able to grasp the fundamental principles of the mechanical rubber business. The rubber industry is developing faster than men are being developed for it, and you know what this means and its value to you. This company is one of the largest and most progressive in the United States. All communications strictly confidential. Address Rubber, Box 773, New York.

Inquiry No. 8868.—Wanted to buy nickeloid for buttons.

PATENT RIGHTS on a high-class, fully developed, well advertised article already introduced on more than fifty roads and interurban lines and in hundreds of fine homes in the United States, Canada and Mexico. Easily made in any factory. Good seller. Good working stock on hand. Particulars to those actually interested. Address G. R. Stanton, 1302 West Main Street, Decatur, Ill.

Inquiry No. 8877.—For manufacturers of convex glass for pictures.

PATENTS FOR SALE.

MONEY MAKING UNITED STATES AND CANADA PATENTS FOR SALE.—Adjustable window screens. Fit all windows. Ready market assured. Address W. F. Heuser, Cohecton, Sullivan County, N. Y.

Inquiry No. 8885.—For manufacturers of the "Mysterious Ball" like that of Mr. Lepere's—a man in a ball.

U. S. AND CANADA.—Monkey wrench, quick acting, time saving. Strong sure grip, no screw, no notches, strong braced handle, easily made. In Official Gazette Jan. 12, 1909. Address W. J. Stenker, Mohall, N. Dak.

Inquiry No. 8889.—Wanted to buy a machine which breaks and divides apricot stones.

FOR SALE.—Patent No. 898,684. Table baseball game. Will sell at a bargain. For further information and full particulars address J. B. Rittenhouse, 70 Pearl Street, Toronto, Canada.

Inquiry No. 8894.—For manufacturers of an automatic camera for making photographs on pin trays, etc.

PATENT FOR SALE.—Outright or royalty. Steel scaffold bracket. Used by all mechanics. Nothing like it on market. For full particulars address L. D. Carter, Roseville, California.

Inquiry No. 8897.—For the manufacturers of the "Lid on" can opener.

FOR SALE on cash basis. Patent No. 906,598 on Mail Delivering Device, for use in connection with rural delivery. Working model in daily use and an approved success. Address C. E. Young, 207 Bowery, N. Y. City.

Inquiry No. 8903.—For firms dealing in motor cars to suit Indian climate.

PARTNERS WANTED.

PARTNER WANTED.—Who can furnish money to construct an asphalt per my patent No. 908,684. For particulars address William Rumble, 1902 Crotona Avenue, New York.

Inquiry No. 8904.—Wanted to buy new or second hand machinery for making "bow type" mouse and rat trap springs and wire parts, single machine or full outfit.

AGENTS WANTED.

JUST OUT.—Low priced, 3-lb. mop; turn crank to wring; clean hands; women all buy; 150 per cent. profit; catalog free. For full information and particulars, address U. S. Mop Co., 306 Main St., Leipsic, O.

Inquiry No. 8908.—For a dealer in tapes and cords for Venetian blinds.

LISTS OF MANUFACTURERS.

COMPLETE LISTS of manufacturers in all lines supplied at short notice at moderate rates. Small and special lists compiled to order at various prices. Estimates should be obtained in advance. Address Munn & Co., List Department, Box 773, New York.

Inquiry No. 8909.—For a machine to paint shade or blind rollers.

A LIST OF 1,500 mining and consulting engineers on cards. A very valuable list for circularizing, etc. Price \$15.00. Address Munn & Co., List Department, Box 773, New York.

Inquiry No. 8911.—Wanted to buy steamfitter's tools and screw-cutting lathes.

MISCELLANEOUS.

UNITARIAN LITERATURE, including sermons and weekly publications, sent free, on application to Miss Peck, 106 George Street, Providence, R. I.

Inquiry No. 8918.—For manufacturers of "Wyd's Electro-Catalytic Sparking Plug."

Inquiry No. 8920.—For a still for extracting alcohol from saw dust.

Inquiry No. 8921.—For the manufacturers of gilt paper.

Inquiry No. 8922.—Wanted the address of Worthington Boiler Co.

Inquiry No. 8926.—Wanted to buy a tree digger of steel plates which are forced down beside the tree and locked in position.

Inquiry No. 8927.—Wanted to buy an apparatus for sterilizing water at the tap by an ozonizer.

Inquiry No. 8928.—For the manufacturers of a steam rotary excavator as described in the Scientific American of December 12, 1908, page 347.

Inquiry No. 8929.—For makers of automatic gates that can be opened without the driver of a vehicle getting out.

Inquiry No. 8931.—For parties who manufacture the Western Stamp Borer for boring stumps.

Inquiry No. 8934.—Wanted to buy seal and book of blank stock certificate.

Inquiry No. 8936.—Wanted machinery used to spin or wrap paper pencils in the manner that paper pencils are made.

Inquiry No. 8940.—Wanted to buy machine or bender for rounding angle iron, flat iron and round end oblong tanks.

Inquiry No. 8941.—For manufacturers of machinery for making fly screens.

Inquiry No. 8942.—Wanted to buy apparatus to enable anyone with rheumatism or other cause to hold a penholder.

Inquiry No. 8943.—Wanted a portable hand machine for breaking stones for installing road surface. To be worked by two or three men.

Inquiry No. 8944.—For the address of the manufacturers of the king or lever collar button.

Inquiry No. 8947.—For the manufacturers of a machine to compel deep breathing called "Pneumaxeter."

Inquiry No. 8948.—For manufacturers of gearing, noiseless or otherwise, suitable for speed of 3,000 to 4,000 r. p. m. for wheels 5 inches diameter.

Inquiry No. 8949.—For manufacturers of a suction or vacuum street sweeper.

Inquiry No. 8950.—For manufacturers of machinery for the production of Coquito, Palm, Babosa, and Mame seed or nuts.

Inquiry No. 8951.—For manufacturers of machinery for making milk bottle sanitary fiber caps.

Inquiry No. 8952.—For firms making apparatus for using oil for fuel under a steam boiler instead of coal.

Strands with viscose, and the article, applying and treating, L. M. Chorier..... 912,812

Strata, such as muck, sand, etc., device for sinking through soft, A. B. Dowell..... 912,941

Street pavement, roadway, A. E. Schutte..... 912,898

Sulfur burner, agitator, J. C. Wise, reissue..... 12,921

Sulfur from sulfur-bearing gases, recovering, P. S. Smith..... 912,743, 912,744

Swivel, chain, A. J. Pollock..... 912,323

Syrup, apparatus for the manufacture of simple, S. T. Hensel..... 912,959

Tack pulling machine, insole, W. F. Reulmann..... 912,730

Talking machine mechanism, H. Sheble..... 912,425

Talking machine sound box, T. Kraemer..... 912,857

Tank, See Flushing, Lida..... 912,545

Tape applying mechanism, M. B. Diskin..... 912,701

Telephone attachment, Lyda & Robinson..... 912,778

Telephone cord protector, E. T. Banes..... 912,908

Telephone repeating apparatus and circuit, J. J. Skidmore..... 912,822

Telephone system, W. W. Dean..... 912,878

Telephonic receiver, A. H. Nicholson..... 912,822

Temperature regulating device, W. W. Curtis..... 912,293

Thermostat, E. W. Comfort..... 912,286

Thermometric instrument, C. C. Benson..... 912,573

Threshing machine, E. M. Peterson..... 912,610

Ticket holder, C. L. Brush..... 912,804

Ticket holder, A. V. Sims..... 912,905

Ticket holder, milk, J. H. Rackmeyer..... 912,412

Tile, roofing, B. L. Bacot..... 912,353

Time controller, electric, H. K. Wood..... 912,347

Time cut-out, F. Gardner..... 912,555

Tire, automobile, F. E. Modlin..... 912,399

Tire, automobile, J. Shaw..... 912,422

Tire, pneumatic, G. J. Paynter..... 912,725

Tire retaining dangles, securing device for, R. S. Bryant..... 912,537

Tires, device for inserting balls in, J. S. Summers..... 912,917

Tobacco curing stick, J. G. Sharon..... 912,902

Toll box, J. M. Baker..... 912,776

Tool, M. H. Stevens..... 912,752

Tool, electrically heated, Wohl & Low..... 912,765

Tool handle, pneumatic, W. O. Duntley..... 912,655

Tool, mortising, J. Anderson..... 912,925

Tool, rock drilling, H. G. Williams..... 912,844

Toy, T. Harris..... 912,844

Trains, apparatus for automatically controlling the speed of, Schreuder & Spicer..... 912,897

Trolley, S. B. Sicksel-Smith..... 912,427

Trolley head and guard, McGuffey & Dowler..... 912,400

Trolley stand or base, C. J. Geterman..... 912,556, 912,557

Trousers stretcher and creaser, Roumillat & Caldwell..... 912,492

Truck, printer's form, J. A. Mashek..... 912,589

Truck provided with special ball bearings, C. Gentle..... 912,463

Tube-making machine, M. E. Curtis..... 912,292

Tube sections and similar parts, machine for making, Nilson & Olson..... 912,601

Tunnel boring device, R. H. Keays..... 912,575

Turbine motor, T. S. Patterson..... 912,608

Twyer iron, R. C. Kraatz..... 912,314

Type case bracket, A. T. Gaumnier..... 912,462

Type, machine for forming justified lines of, W. T. Hooftnagle..... 912,961

Typewriter, E. J. Barker..... 912,525

Typewriter case, B. S. Gore..... 912,951

Typewriter copy holder and marker, T. W. McCreary..... 912,596

Typewriting machine, H. P. Moorrees..... 912,316

Typewriting machine, C. H. Shepard..... 912,327

Typewriting machine, E. S. Morgan..... 912,710

Typewriting machine tabulating device, F. J. Tanner..... 912,508

Typewriting machines, paper feed for front strike, W. R. Fox..... 912,660

Umbrella, folding, R. Greenwood..... 912,841

Umbrella frame, J. Rose..... 912,491

Unit switch multiple, H. W. Cheney..... 912,542

Valve, N. B. Creighton..... 912,816

Valve, E. W. & W. H. Roberts..... 912,890

Valve alarm attachment, R. F. Spamer..... 912,432

Valve automatic engine stop, J. L. Kimball..... 912,385

Valve, balanced slide, W. F. Gould..... 912,372

Valve cage for air brake pumps, air, J. Mattingly..... 912,706

Valve, dash, D. W. McNeil..... 912,597

Valve, flushing, D. W. McNeil..... 912,599

Valve, so-called reducing, C. E. Squires..... 912,503

Valve, triple, W. V. Turner..... 912,511

Valve, triple, Turner & Custer..... 912,512

Valve, burial, Reinmiller & Campbell..... 912,414

Vehicle attachment, C. Todd..... 912,759

Vehicle controlling means, motor, W. F. Richards..... 912,489

Vehicle fare register, Popp & de Horevitz..... 912,728

Vehicle foot rest, A. E. Smith..... 912,429

Vehicle, motor, S. R. Brainard..... 912,798

Vehicle spring clip, R. Jardine..... 912,684

Vehicle wheel, M. M. Bailey..... 912,438

Vehicle wheel brake shoe, Earlam & Wild..... 912,369

Vehicle wheel cushion tire, E. J. Duff..... 912,943

Vehicles, connection with, thermometers or fare indicators for, C. Mascameters..... 912,704

Vehicles, device for detaching horses from, T. M. Boyard..... 912,646

Vehicles, device for indicating the intended movements of, P. S. Douglas-Hamilton..... 912,831

Vending machine, J. E. Packard..... 912,606

Vending machine, coin controlled, G. W. Finney..... 912,455

Vessel, hydroplane, G. R. Clifford..... 912,814

Vessels, quicksilver closure for fermentation, W. Lazarus..... 912,581

Voucher severing device, A. H. Graves..... 912,981

Wagon and portable furnace, hygienic, D. Mandel..... 912,585

Wagon body, J. T. Smither..... 912,430

Wagon body, Graham & Baker..... 912,840

Wagon reach, Braum & Wackerow..... 912,800

Washbasin, D. W. McNeil..... 912,598

Washing machine power transmitting device, T. J. Winans..... 912,927

Water closet seat, E. C. Stover..... 912,754

Water gage, electric alarm, G. C. Marsh..... 912,970

Water meter, A. H. & C. H. Kennedy..... 912,383

Water softening apparatus, W. M. Bruce..... 912,802, 912,803

Web material, feeding, C. B. Stilwell..... 912,330

Well or cistern top, W. B. Libby..... 912,477

Wheat heater, H. F. Pletsch..... 912,322

Wheel, See Resilient wheel..... 912,615

Wheel, R. W. Fringle..... 912,627

Wheel, B. C. Seaton..... 912,627

Wheel, T. J. Thorp..... 912,758, 912,919

Wheels and shafts, safety device for connecting, W. F. Richards..... 912,488

Wind shield, J. H. Sprague..... 912,911

Winding machine, B. Hurd..... 912,681

Window, bay, L. G. Quackenboss..... 912,617

Window lock, W. E. de Voe..... 912,295

Window lock, C. H. Caler..... 912,805

Window lock, automatic, A. N. Davis..... 912,817

Window pane fastener, H. C. Frazier..... 912,302

Window safety device, J. Fishman..... 912,458

Window screen, F. F. Hultgreen..... 912,849

Window, swinging, H. J. Schlacks..... 912,623

Wire fence clutch, E. Shultz..... 912,903

Wire stretcher, B. Goodman..... 912,838

Wire stretcher, B. Hestness..... 912,960

Wire stretching appliance, G. L. Kroder..... 912,858

Wire structure, T. G. Melish..... 912,481

Books Practical Books Valuable Books Scientific Books Technical Books

AGRICULTURE.—The New Agriculture. By T. Byard Collins. 12mo.; 374 pages; 106 illustrations.....\$2.00

A popular outline of the many changes which are revolutionizing the methods of farming, and the habits of farm life. It is one of the most practical treatises on the subject which has ever been issued.

ALCOHOL.—Industrial Alcohol. Its Manufacture and Uses. By John K. Brachvogel. 8vo.; 528 pages; 107 illustrations.....\$4.00

A practical treatise based on Dr. Max Maercker's "Introduction to Distillation," as revised by Drs. Delbruck and Lange, comprising raw material, mashing and yeast preparation, fermentation, distillation, rectification and purification of alcohol, alcoholometry, the value and significance of a tax-free alcohol, methods of denaturing, its utilization for light, heat, and power production, a statistical review, and the United States law.

AMATEUR MECHANICS.—Home Mechanics for Amateurs. By George M. Hopkins. 12mo.; 370 pages; 326 illustrations.....\$1.50

This is a thoroughly practical book by the most noted amateur experimenter in America. It appeals to the boy as well as the more mature amateur. Holidays and evenings can be profitably occupied by making useful articles for the home or in the building of small engines or motors or scientific instruments.

AMUSEMENTS.—The Scientific American Boy. By A. Russell Bond. 12mo.; 317 pages; 340 illustrations.....\$2.00

This is a story of outdoor boy life, suggesting a large number of diversions which, aside from affording entertainment, will stimulate in boys the creative spirit. In each instance complete practical instructions are given for building the various articles.

COMPRESSED AIR.—Compressed Air. Its Production, Uses, and Application. By Gardner D. Hiscox. 8vo.; 665 pages; 540 illustrations.....\$5.00

The most complete book on this subject. It treats on its physical and operative properties, and is written by an expert. Taken as a whole it might be called an encyclopedia of compressed air.

DIES.—Their Construction and Use for the Modern Working of Sheet Metals. By Joseph V. Woodworth. 8vo.; 384 pages; 505 illustrations.....\$3.00

A most useful book, and one which should be in the hands of all engaged in the press working of metals; treating on the designing, constructing, and use of tools, fixtures and devices, together with the manner in



TAKE 2 WEEKS
for your **Easter Vacation**

Sail by the superb
S. S. OCEANA
8,000 tons

From New York, Saturday, April 3,
for

BERMUDA.—Stay 2 days, see Easter
Lilies in bloom under sunny skies.

ST. THOMAS.—A few hours' stop to al-
low visits to the delightful places of interest.

SAN JUAN (Porto Rico).—Remain 2
days, one of them Easter Sunday.

HAVANA (Cuba).—Almost 2 days to
enjoy its many attractions.

Returning to New York April 19, with re-
newed energy for the Spring season.

Rates, from \$90 up, secure transportation,
meals and accommodations. Write to the

HAMBURG-AMERICAN LINE
41-45 Broadway, New York



"Porox" Ignitor Storage BATTERIES

High Capacity. Light Weight.
Proved as the best for both igni-
tion and light. No loss of current.
It stores and returns the power to
your machine. You can see and
examine the interior without ex-
posure and digging, because it is
made up in transparent celluloid
jars. No danger of breakage like
hard rubber. Plates and jars are
guaranteed for one year.
Send for catalog.

Albert Muller, 145 West 49th St., New York



ROYAL ENGINE

A simple, compact motor of strong,
rigid construction, comprising the
latest desirable features in gas en-
gineering. 2½ to 15 horse power.

ROYAL EQUIPMENT CO.
145 Housatonic Ave., Bridgeport, Conn.

RUBBER STAMP MAKING.—THIS
article describes a simple method of making rubber
stamps with inexpensive apparatus. A thoroughly
practical article written by an amateur who has had ex-
perience in rubber stamp making. One illustration.
Contained in SUPPLEMENT 1110. Price 10 cents. For
sale by Munn & Co. and all newsdealers.



Crescent Wood Working Machinery

Better than some that may be offered
you at a higher price

Band Saws, Saw Tables,
Jointers, Shapers, Bor-
ers, Swing Saws, Disk
Grinders, Planers,
Planer and Matcher,
Band Saw Blades.

Send today for free
catalog.

The Crescent Mach. Co.
280 Main Street, Leetonia, Ohio, U. S. A.



HARROUN
8 Cylinder V-Motor

40 H.P. Weight 175 lbs.
Water-cooled or Air-cooled

Continental Engine Co.
10 S. Canal St., Chicago

WELL DRILLING MACHINES

Over 70 sizes and styles, for drilling either deep or
shallow wells in any kind of soil or rock. Mounted on
wheels or on skids. With engines or horse powers.
Strong, simple and durable. Any mechanic can operate
them easily. Send for catalog.

WILLIAMS BROS., Ithaca, N. Y.

SPARK COILS

Their Construction Simply Explained

Scientific American Supplement
160 describes the making of a 1½-inch spark
coil and condenser.

Scientific American Supplement
1514 tells you how to make a coil for gas-
engine ignition.

Scientific American Supplement
1522 explains fully the construction of a
jump-spark coil and condenser for gas-engine
ignition.

Scientific American Supplement
1124 describes the construction of a 6-inch
spark coil.

Scientific American Supplement
1087 gives a full account of the making of
an alternating current coil giving a 5-inch
spark.

Scientific American Supplement
1527 describes a 4-inch spark coil and con-
denser.

Scientific American Supplement
1402 gives data for the construction of coils
of a definite length of spark.

The above-mentioned set of seven papers
will be supplied for 70 cents.

Any single copy will be mailed for 10 cts.

MUNN & COMPANY, Publishers
361 Broadway New York

Woodworking machinery safety appliance, F.
Braun 912,799
Wrench, R. Keil 912,687

DESIGNS.

Collar supporter, neck, F. L. Leyser.....	39,832
Emblem, B. Martin.....	39,823
Gas steam radiator, J. H. Mead.....	39,827
Infstand, C. H. Numan.....	39,825
Neck ruff form, T. P. Taylor.....	39,830
Niche or shrine, J. Koenig.....	39,822
Purse, F. L. Bradford.....	39,824
Stove, J. C. Hosford.....	39,828
Trimming, W. Helbig.....	39,831

TRADE MARKS.

Asphalt, refined, Barber Asphalt Paving Co.,	72,740 to
Baking powder, A. Schilling & Co.....	72,699
Balls, golf, A. G. Spalding & Bros.....	72,738
Batteries, storage, Electric Storage Battery	72,708
Co.....	72,711
Boots and shoes, leather, G. C. Farnum.....	72,714
Boots and shoes, leather, Haynes Henson	72,729
Shoe Co.....	72,735
Boots and shoes, leather, Selz, Schwab & Co.	72,770
Boots and shoes, leather, United Shoe Ma-	72,751
chinery Co.....	72,739
Canned fruits and vegetables, E. C. Reese.....	72,744
Canned salmon, Alaska Packers Association.....	72,762
Canned vegetables, C. E. Brown & Co.....	72,759
Carpet sweepers, Bissell Carpet Sweeper Co.	72,736
Cement waterproof, product for rendering,	72,766
Schoellkopf, Hartford & Hanna Co.....	72,774
Cleaning and polishing powder, E. L. Wag-	72,715
goner.....	72,734
Cleaning apparatus, W. E. R. R. R. R. R.	72,748
Clocks and watches, Western Clock Manu-	72,725
facturing Co.....	72,710
Clothing, certain, John S. Naylor Co.....	72,721
Clothing, certain, Tauber, Ryttenberg & Co.	72,728
72,733,	72,734
Coffee, blended, Park & Tilford.....	72,748
Cream, complexion, Pilsco Co.....	72,722 to
Electrical goods, certain, Excel Electric Heat-	72,725
ing Co.....	72,710
Electrical goods, certain, Pass & Seymour.....	72,721
Electrical supplies, certain, F. G. Schaaf.....	72,728
Enameled metal articles, Enterprise Enamel	72,709
Co.....	72,704
Fire kindler, M. A. Coney.....	72,704
Flour, wheat, C. L. Plumb.....	72,750
Foods, certain, Western Grocer Co.....	72,775
Gloves, cloth, G. L. Wolf.....	72,737
Gloves, leather, Strawbridge & Clothier.....	72,731
Hair and scalp, preparation for the treatment	72,701
of the, E. Blackstock.....	72,704
Hair tonic, Davis Chemical Co.....	72,752
Hair wavers, ladies', Strate-Fold Manufac-	72,703
turing Co.....	72,745
Hats, Corl, Knott & Co.....	72,705
Hose supporters, Carson Pirie Scott & Co.....	72,713
Hosiery, Davis Hosiery Mills.....	72,753
Leather dressings and polishes, L. Graziadei.....	72,747
Magazines, T. A. Cawthra.....	72,754
Magazines, monthly, Lewis Publishing Co.....	72,758
Metal polish, International Metal Polish Co.	72,754
Oil, cotton seed, certain, Cotton Oil Co.....	72,777
Oil, lucia olive, G. Rossano & Bro.....	72,758
Oils and carbohydrates, compound of oxidized	72,712
essential, E. C. Getsinger.....	72,769
Paper, envelopes, and blank books, J. C. Blair	72,761
Co.....	72,749
Pianofortes, C. Bechstein.....	72,720
Plaster boards, Plaster Products Co.....	72,702
Pomade, R. A. Oleshak.....	72,727
Remedies for affections of the skin, W. W.	72,726
Christmas.....	72,706
Remedy for certain diseases, S. Rolfsen	72,716
Schmidt.....	72,707
Remedy for corns, warts, bunions, and cal-	72,756
louses, N. C. Polson.....	72,732
Remedy for heart diseases, tonic, Dr. Egen	72,755
& Kuth.....	72,718
Remedy for leprosy, Kalle & Co., Actien-	72,746
gesellschaft.....	72,717
Remedy for rheumatism, Dr. Egen & Kuth.....	72,765
Scarves and cravats, silk, Oppenheimer & Levinson	72,719
Shirts, negligee and workmen's, Sweet, Orr	72,730
& Co., & Co.....	72,700
Shotguns and rifles, Marlin Firearms Co.....	72,773
Soap, Lautz Bros. & Co.....	72,757
Steel polisher of abrasive rubber, E. Faber.....	72,767
Tablet, cathartic, J. J. Kline.....	72,771
Tobacco, smoking, Falk Tobacco Co.....	72,772
Tuberculosis, preparation for the treatment	72,776
of, A. G. Meyer.....	72,768
Turpentine substitute, Standard Oil Co. of	
New York.....	
Undershirts, drawers, and union suits.....	
Wyle Co.....	
Vellings, chiffon, S. Oppenheimer & Levy.....	
Vinegar, cider, Price & Lucas Cider and Vin-	
egar Co.....	
Weather strips, A. R. Groome.....	
Whisky, blended, Luyties Bros.....	
Whisky, straight bourbon, Maryland Distil-	
ling Co.....	
Wine, sparkling burgundy type of, William	
Wolf & Co.....	
Woolen cloth, American Woolen Co.....	
Yarn, Hibern, Hollweg & Co.....	

Labels.

"Big Lou," for blended whisky, H. L.	14,645
Griesedieck Distilling Co.....	
"Carolina," for a compound of coffee and	14,648
chicory, Hall & Bass.....	
"Creme Metamorphose," for a French cos-	14,654
metic, Germania Chemical Co.....	
"Du Pont Black Sporting Powder," for	14,658
loaded shells, E. I. du Pont de Nemours	
Powder Co.....	
"Feist Gas Mantle," for incandescent gas	14,657
mantles, Feist Gas Mantle Manufac-	
turing Co.....	14,650
"Giggles," for popcorn, National Candy Co.	
"Haelan," for liniment, Crawford & For-	14,652
man.....	
"Iron-de-quoit Grape Juice Unfermented,"	14,647
for unfermented grape juice, Irondequoit	
Fruit Juice Co.....	
"Keystone Garter," for men's garters, C. L.	14,656
Meyer.....	
"Liberty," for bromine, J. Liberman.....	14,659
"Old Wilmore," for a blended whisky, L.	14,646
Sherman & Co.....	
"Real Kisses," for candy kisses, W. B. Mc-	14,649
Co. Co.....	
"Roche-Croll Cravats," for cravats, Roche,	14,655
Croll & Co.....	
"St Patrick's Oil," for oil, J. L. De Zea-	14,653
bault.....	
"Success Remedy Co. Pills Tablets," for	14,651
pills and tablets, Success Remedy Co.....	
"The Commercial Club," for cigars, C. B.	14,644
Henschel Manufacturing Co.....	

PRINTS.

"A Case of Desertion," for wheat breakfast	2,418
food, Cream of Wheat Co.....	
"California Flower Girl," for California per-	2,421
fumes, Paul Rieger & Co.....	
"Cream of Wheat is Ready," for wheat	2,417
breakfast food, Cream of Wheat Co.....	
"Cut of Mattress," for mattresses, Sears, Ro-	2,426
buck & Co.....	
"Fast Asleep," for wheat breakfast food,	2,420
Cream of Wheat Co.....	
"I Know The Man," for wheat breakfast	2,419
food, Cream of Wheat Co.....	

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 10 cents, provided the name and
number of the patent desired and the date be
given. Address Munn & Co., 361 Broadway, New
York.

Canadian patents may now be obtained by the in-
ventors for any of the inventions named in the fore-
going list. For terms and further particulars
address Munn & Co., 361 Broadway, New York.

NO SPILLING OF ASHES OR FIRE

Radically new in construction, making it impossible for the poisonous
nicotine to permeate the smoker's system.

A SCIENTIFIC AMERICAN PIPE FOR ALL

The only pipe cleanly and safe enough for the Home or Office. This radical advancement in Pipe Con-
struction creates a cool, sweet and sanitary smoke, impossible in other pipes.
Always ready for use. No waste of tobacco. Can be cleaned very easily. Can be carried in pocket lighted
with perfect safety. The wish of pipe smokers finally realized.

IRVING'S WIZARD PIPE

Genuine French Briar Bowls, Best Vulcanized Rubber Stems.

Send \$1.00 for Style X Straight or Curved Stem, including 1 doz. Antiseptic Cartridges.
Send \$2.00 for Style XX Straight or Curved Stem, Sterling silver mounted, with
leather case. Mailed postpaid on receipt of price.

WIZARD PATENT DEVELOPING COMPANY, Inc.
127 West 81st St., New York

DEALERS WANTED

WANTED.—LABORATORIAN at \$4.00 per diem. A
competitive examination will be held at the Navy
Yard, Brooklyn, N. Y., March 5, 1909, to fill the above
position. For application and further information ad-
dress "COMMANDANT," Navy Yard, Brooklyn, N. Y.

LET US BE YOUR FACTORY
STAMPINGS, MODELS, EXPERT WORK
THE GLOBE MACHINE AND STAMPING CO.
970 Hamilton St., Cleveland, O.

ICE MACHINES Corlies Engines, Brewers'
and Butlers' Machinery, THE VILBER
MFG. CO., 899 Clinton St., Milwaukee, Wis.

MODELS & EXPERIMENTAL WORK.
Inventions developed. Special Machinery.
E. V. BAILLARD, 24 Frankfort Street, New York.

RUBBER Expert Manufacturers
Fine Jobbing Work
PARKER, STEARNS & CO., 228-229 South Street, New York

HOEFT & COMPANY
Die Makers, Model Makers, Machinery Builders, Presses,
Light and Heavy Stampings. 120 Michigan St., Chicago, Ill., U.S.A.

MODELS & INVENTIONS PERFECTED
UNION MODEL WORKS
193 So. Clark St., CHICAGO.

Print Your Own
Cards, circulars, book, newspaper. Press \$5.
Larger \$15. Save money. Print for others.
big profit. All easy, rules sent. Write fac-
tory for press catalog, type, paper, etc.
THE PRESS CO., Meriden, Connecticut.

ROTARY PUMPS AND ENGINES
Their Origin and Development.—An important series of
papers giving a historical resume of the rotary pump
and engine from 1588 and illustrated with clear draw-
ings showing the construction of various forms of
pumps and engines. 33 illustrations. Contained in
SUPPLEMENTS 1109, 1110, 1111. Price 10 cents
each. For sale by Munn & Co. and all newsdealers.

NOVELTIES & PATENTED ARTICLES
MANUFACTURED BY CONTRACT. PUNCHING DIES, SPECIAL MACHINERY.
E. KONIGSLOW STAMPING & TOOL WORKS, CLEVELAND, O.

INVENTORS We manufacture METAL
SPECIALTIES of all kinds,
to order; largest equipment;
lowest prices. Send perfect sample for
low estimate and best expert advice
FREE
THE EAGLE TOOL CO., Dept. A, Cincinnati, O.

SMALL HOUSE NUMBER of AMERICAN HOMES AND GARDENS

THE artistic and inexpensive house is the chief demand of the home seeker of to-day. For that
reason the April, 1909, number of American Homes and Gardens will be a **SPECIAL
SMALL HOUSE NUMBER.**

This issue will contain a vast amount of valuable information for the prospective home
builder. It will tell him how to select a country site, how the various rooms of the house should
be planned; the style of architecture in which the house should be designed; the material of which it
may be built; the kind of plumbing fixtures to be used; the heating system to be selected; the choice of
the hangings for the walls, doors and windows; appropriate furniture for the home; the interior decoration
of the home; and the laying out of the ground surrounding the house, as well as the planting of them.

THE ARTISTIC EXPRESSION OF THE SMALL HOUSE is well explained in an article by Francis
Durando Nichols, illustrated with fifty engravings showing exterior and interior views and floor plans of
a group of model houses of small size and small cost.

PLUMBING FOR A SMALL COUNTRY HOUSE, by John A. Gade, is a very important subject.
No part of a house needs greater attention than the laundry, kitchen and bath room. Hence the economic
and convenient placing of the plumbing fixtures, the kind to use, and the cost of the same are matters of
interest to all prospective home builders.

THE MAKING OF AN IRIS GARDEN, by Samuel Howe, is an illustrated article showing how a
swamp or lowland can be developed and transformed into a beautiful iris garden.

DECORATIVE FEATURES IN THE SMALL HOME, by Alice M. Kellogg, presents in a brief way
with ten illustrations artistic schemes of covering the floors and walls of the house, harmonious and
appropriate hangings for the doors and windows, with numerous suggestions for the decorating of the
various rooms of the house.

A GROUP OF MODEL MOTOR HOUSES FOR THE SMALL COUNTRY PLACE, by Ralph de
Martin, forms two pages of illustrations and sets forth the best designs for a small motor house suitable
for the accommodation of one motor car and with sufficient space for a work bench.

HOME-MADE NOVELTIES FOR THE COUNTRY HOUSE, by Mabel Tukey Priestman, treats of
the conversion of unlikely things into useful articles, and the illustrations show the results.

THE EVOLUTION OF THE SMALL HOUSE PLAN, by Joy Wheeler Dow, is an important article
by a well-known architect on the economic planning of a small house, costing from \$2,500 to \$8,000. The
plan and the arrangement of the rooms is the first thought given to the house and is one in which the
layman should be most interested.

A FORMAL GARDEN AND PERGOLA, DESIGNED BY AN AMATEUR, by Alexander R. Holli-
day, informs the reader how an amateur planned and laid out his garden and how he built his pergola.
Illustrated with plans and scale drawings.

PROPER FURNITURE FOR THE SMALL HOUSE, by Esther Singleton, with illustrations show-
ing the artistic and appropriate furniture for the house, and the proper position in which it is to be placed,
together with an accurate treatment of the fireplace and mantel.

THE USE OF CONCRETE IN THE BUILDING OF A SMALL COUNTRY HOUSE, by Benjamin
Howes, is a timely and comparatively new subject, and is one in which much interest is shown at the
present moment. The article is profusely illustrated with fifty engravings showing exterior and interior
views and floor plans of small houses of various styles of architecture in which concrete is used with
artistic results.

THE HEATING APPARATUS FOR THE SMALL COUNTRY HOUSE, by Allyn Frogner, is the
title of an article treating in a practical manner one of the most important features of a small country
house. How to heat and what is the cost? That is a question which has been well answered for the three
respective systems of hot air, steam heat and hot water.

PROBLEMS IN PLANNING THE GROUNDS OF A SMALL COUNTRY PLACE, by Charles D.
Lay, Mr. Lay has explained in a very concise form how the grounds around a small country place may
be planted at a very low cost, and enumerates the best and most effective shrubs and plants to be used.

This **SMALL HOUSE NUMBER** will contain 165 illustrations covering 52 pages, which will be
inclosed in a striking colored cover.
The price will be fifty cents. Those now subscribing for American Homes and Gardens for the year
will receive it at the regular rate. Subscription price \$3.00 a year.

MUNN & COMPANY, Publishers, 361 Broadway, New York City