

### RECENTLY PATENTED INVENTIONS. Engineering Improvements.

**ENGINE.**—CHARLES G. HOLMBERG, Woonsocket, S. D. The engine is of the type having oscillating pistons. The object of the invention is to provide an engine which can be driven by steam, compressed air, or explosive gases. The engine has a cylinder divided by fixed partitions into two working chambers. In each partition is a valve-chest provided with ports communicating with the working chambers. The valve-chests are provided with chamber extensions arranged in the partitions and closed at their ends. The chamber extensions lead to exhaust-pipes connected with one of the cylinder-heads. In the cylinder a piston oscillates having a piston-head for each working chamber. Valves in the valve-chests control the inlet and exhaust of the steam.

**STEAM-BOILER.**—ROBERT H. BOTTS, Richmond, East Yards, Cal. The boiler has a large fire surface and a small steam area, is of small weight and especially adapted for air-ships or locomotives. The boiler consists of a number of sets of generating chambers, each set being composed of a number of chambers concentric with each other and composed of inner and outer tubes, which are spaced apart to secure the desired steam space. Pipes are provided for the circulation of water to supply the steam chambers and to discharge the steam thence as desired.

### Mechanical Devices.

**CASTING-BOX.**—LEO GROSSMAN, Brooklyn, New York city. Mr. Grossman has devised improvements in casting boxes for forming stereotypes, whereby a large number of plates can be successively cast in and removed from the mold or casting-box in a comparatively short time, without requiring the employment of highly-skilled labor. The casting-box has a drag; movable holders to engage the matrix at opposite sides; cores mounted to swing alternately into and out of the drag; a mechanism for imparting a simultaneously-swinging motion to the cores to move one out of the drag and the other into the drag; and means for imparting movement to the matrix-holders. The matrix can be readily changed for another one whenever required without disturbing the cores and the parts connected therewith.

**DISTRIBUTING-ROLLER FOR PRINTING-PRESSES.**—GEORGE A. SCHRIVER, Brooklyn, New York city. In order to insure a thorough and equal distribution of the ink on the inking-rollers, a distributing-roller is placed in peripheral contact with the inking-rollers, the distributing-roller being mounted to turn and slide on a spindle held against movement longitudinally. The distributing-roller is caused to travel in the direction of its length when rotated by the inking-rollers. Bearings are held on the inking-roller frame and are engaged by the ends of the spindle. These bearings have elongated openings for the flattened ends of the spindles to slide in. The means for moving the distributing roller on the spindle are completely invisible. The spindles are held against movement. The cams and like devices heretofore employed for shifting the distributing-rollers with their spindles are entirely dispensed with; and the spindles are free to yield so as readily to hold the distributing rollers in proper contact with the inking-rollers.

**MACHINE FOR COATING EYELETS.**—ISAAC W. GILES, New Bedford, Mass. In coating eyelets by means of tumbling mills, a revolving barrel is used containing a certain quantity of paint. As the articles roll in the drum they are covered with a certain quantity of the paint. It happens that the openings are filled with the paint; and the coat thus applied is ordinarily too thick. The present invention is an improved tumbling-machine by which the eyelets can be quickly coated without becoming clogged.

### Designs.

**SCARF.**—DAVID MAYER, Brooklyn, New York city. The leading feature of the design is a scarf body having a center piece in relief on the front face of the body.

**GARTER-HOOK.**—LOUIS MCCUTCHON, Havana, Cuba. The shank and hook comprising the device are serpentine in shape and form a correspondingly shaped slot between them which is especially adapted to clasp and hold.

**BOOK COVER.**—GEORGE W. EDWARDS, Manhattan, New York city. Mr. Edwards has designed for the Funk & Wagnalls Company a cover which is to be used primarily for the Standard Dictionary. The cover is artistically designed and consists of a tasteful arrangement of conventional foliage in connection with an open book and a torch.

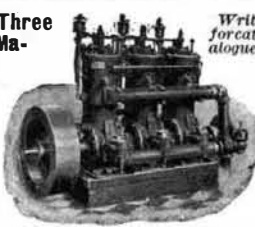
**TYPEWRITER-FRAME.**—JESSE ALEXANDER, Manhattan, New York city. The typewriter-frame is provided with posts of such construction that the frame is made so strong and so rigid that there will be very little if any vibration in the operation of the typewriter.

**CIGAR.**—SIMON LEVIN, Manhattan, New York city. The design shows primarily two cigars with but a single outer wrapper. By cutting through the center angular depression of the double cigar two separate cigars are formed.

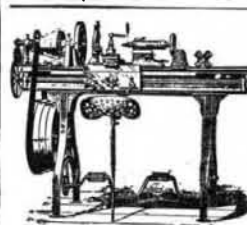
**NOTE.**—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

### The "Wolverine" Three Cylinder Gasoline Marine Engine.

The only reversing and self-starting gasoline engine on the market. Lightest engine for the power built. Practically no vibration. Absolutely safe. Single, double and triple marine and stationary motors from 4 to 30 H. P.



WOLVERINE MOTOR WORKS, Grand Rapids, Mich.



FOR GUNSMITHS, TOOL MAKERS, EXPERIMENTAL & REPAIR WORK, ETC.

From 9-in. to 13-in. swing. Arranged for Steam or Foot Power, Velocipede or Stand-up Treadle. Send for Catalogue. W. F. & J. NO. BARNES CO. 1899 Ruby St., Rockford, Ill.

### Steel Dump Cars

Rails, Switches, Turntables, Etc.

and all Accessories Always in Stock.



ARTHUR KOPPEL, 66-68 Broad St., New York. Write for Catalogue.

### DID YOU EVER PINCH YOUR FINGERS

or cut your thumb trying to open your umbrella? It was the fault of the old-style runner and projecting spring. The new idea does away with that.



to open umbrella. push lightly—to close, pull slightly. It protects the fingers perfectly and costs nothing extra. Just insist on having one on the umbrella you purchase. We guarantee that it will outlast any umbrella. Note the double bulb on which you must look for the name "20th CENTURY."

If your dealer happens not to have an umbrella with this runner, write to us, sending his name, and we will tell you where you can purchase one. ILLUSTRATED BOOK SENT FREE.

ALFRED H. BARNBERGER, 381-383 Broadway, New York

### ELECTRICITY BOOKS AND NOVELTIES

How to Make a Dynamo; How to Make a Storage Battery; How to Make a Voltmeter. Ten cents each. Hand Dynamometers \$1.00, \$2.75, \$5.00. BUIER PUB. CO., Box 709, Lynn, Mass.

The deeper you go into the subject of injectors the greater will be your conviction that the

### U. S. AUTOMATIC INJECTORS

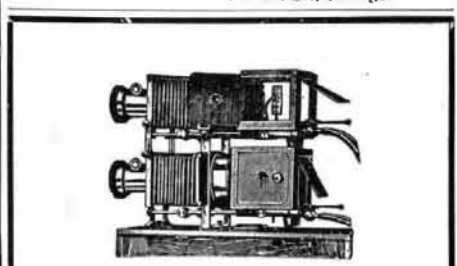
best meet the demands of practical, every-day use. They handle hotter water and feed hotter water to the boiler than any other. Have widest range, greatest grading capacity and are easiest to operate.

Can we mail you a copy of our Engineers' Handy Reference Book? It's free.

AMERICAN INJECTOR CO., Detroit, Mich.



GLASS TUBE CUTTER. Cuts a Perfect Circle. APPEL-MURDOCH COMPANY, 83 Lake St., Chicago.



### WE HAVE CREATED STANDARDS

...IN...

### Stereopticons and Magic Lantern APPARATUS

During a manufacturing career of forty years. From the MAKER to the EXHIBITOR. Distributing Agents for the

### Edison Mfg. Co.'s Projecting Kinetoscopes and Films.

KLEINE OPTICAL COMPANY, 126 State Street, Chicago, Ill. Stereopticon and Moving Picture Catalogue No. 9 Free.



GEARS, UNION MODEL WORKS, 193 So. Clark St., Chicago

Now is the time to subscribe to the **SCIENTIFIC AMERICAN** for the year 1902  
Subscription Price, - - \$3 a Year  
3 Months Trial, 50 cents

### INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

December 3, 1901,

AND EACH BEARING THAT DATE.

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

Abrasive wheel, D. B. Hyde.....	687,962
Acid, producing chemically pure hydrochloric, E. de Haen.....	687,904
Adjustable chair, G. W. Myers.....	687,769
Advertising apparatus, J. E. Houke.....	688,175
Air brake, H. F. Noyes.....	687,773
Air ship, J. Spies.....	688,135
Alarm. See Burglar alarm.	
Alkali and halogen gas, production of caustic, C. E. Acker.....	687,709
Automobile, J. Fortner.....	687,957
Automobile controller, electric, F. F. Loomis.....	688,025
Automobile steering gear and brake, F. F. Loomis.....	688,024
Awning, C. H. Wright.....	688,048
Axle and axle box, M. W. Brooks.....	687,976
Axle, vehicle, W. N. Mecklan.....	687,768
Back pedaling brake, R. W. Perry.....	688,263
Badges, brooches, etc., safety catch for, A. Knauts.....	688,099
Bale tie machine, W. A. Laidlaw.....	688,022
Bales apparatus for covering cylindrical cotton, M. Swenson.....	688,270
Baling press, M. Mead.....	688,255
Bandage, bead, B. P. Fields.....	688,163
Basin, catch, J. Banwell.....	688,714
Battery, P. E. Francken.....	687,833
Battery diaphragm, porous, G. T. Eyanson.....	688,077
Bean or seed sorting machine, W. W. Balch.....	687,911
Bearing, antifriction, S. S. Eycland.....	687,954
Bearing, dust-proof roller, J. J. Koller.....	687,888
Bearing for rolls, R. W. Pain.....	687,776
Beer cooler and ice water device, combined, J. W. & J. T. Harris.....	687,879
Belt, C. M. Butler.....	688,149
Belt attachment, W. W. Duvall.....	687,980
Belt clasp, F. A. Fairbrother, Jr.....	687,819
Belt slide, J. D. Hetherington.....	688,246
Belt support, M. H. Wilber.....	688,047
Belt tightener and stretcher, S. Engle.....	688,240
Binder, adjustable periodical, L. Swanson.....	687,791
Binder, loose leaf, Radford & Brueggeman.....	687,941
Blind, self-acting roller, F. J. Watkinson.....	687,870
Blind stop, window, T. A. Upson.....	687,796
Boiler, J. H. Arrasmith.....	688,053
Book, J. H. Rand.....	687,901
Books, etc., support for, C. E. Jewell.....	687,988
Bore, folding, N. G. French.....	687,740
Boring machine for taper holes, G. Renton.....	687,786
Boring tool, J. F. Cadell.....	687,724
Bottle filling machine, T. L. Valerius.....	687,797
Bottle or jar closing apparatus, C. Carr.....	688,226
Bottle stopper, O. Adams.....	687,710
Bouquet holder, J. Luth.....	687,892
Box, R. M. Hartnett.....	687,983
Box covering machine, H. B. Blackinton.....	688,065
Box fastener, E. Larson.....	687,821
Bracket, W. D. Richter.....	688,265
Brake, S. L. Mitchell.....	688,002
Brake beam, F. K. Fassett.....	687,955
Brazing flux, F. Pich.....	688,030
Brick machine, C. Chambers, Jr.....	687,915
Briquets, machine for compressing peat or other material into, A. A. Sutherland.....	688,269
Brooder, chicken, H. Thiemann.....	687,792
Broom head, E. L. Buchanan.....	687,977
Buckle, belt, W. W. Correll.....	687,730
Bulkhead doors, means for operating, C. T. Dorr.....	687,933
Burglar alarm, W. Brown.....	687,720
Button, collar, T. O. Holland.....	687,985
Button setting machine, C. J. Marks.....	688,026
Button setting machine, A. Dewes.....	688,071
Button setting machine, E. Flagg.....	688,079
Cabinet for stoves, dishes, and kitchen utensils, J. J. Jacobs.....	687,963
Cake board, York & Fancy.....	687,949
Camera adjusting device, K. Nelson.....	687,850
Camera multiplying attachment, F. H. Grover.....	687,745
Camera screen holder, photographic, E. E. Flora.....	688,080
Can cleaner, W. B. Leighton.....	687,990
Can filling machine, C. S. Bucklin.....	688,059
Can filling machine, C. H. Ayars.....	688,231
Can opening device, C. E. Moore.....	687,939
Candelabrum, H. F. Nebr.....	688,110
Cane, F. Caples.....	688,157
Cap, miner's, W. Israel.....	688,092
Car brake and speed regulator, automatic, D. E. Brockett.....	687,975
Car controller, electric, B. W. Scott.....	688,130
Car coupling compensating lever, J. J. O'Brien.....	688,260
Car door, Robinson & Williams.....	688,007
Car, dumping, J. O. Hipp.....	688,174
Car fender, J. Craig.....	687,818
Car, hopper bottom, G. I. King.....	688,019
Car replacer, T. Crawford.....	688,007
Car roof, G. B. Malloy.....	687,843
Car, street, P. M. Kling.....	688,180
Car wheels, mechanism for forming, T. A. Fraser.....	688,241
Carbon apparatus for machinery, W. H. Marshall.....	687,893
Carbonating apparatus, liquid, J. H. Champ.....	687,726
Carburetor, C. M. Kemp.....	687,760
Carpenter's clamp, J. O. Jeffres.....	688,177
Carriage, baby, E. S. Tillinghast.....	688,039
Cart, elevating, W. Patton.....	688,028
Cash indicator, D. K. Allison.....	687,811
Cash register, O. W. Hunsaker, reissue.....	11,954
Casket handle, W. W. Kulp.....	687,889
Caster, furniture, H. B. Kelper.....	687,838
Casting mold for journal brasses, G. H. Clamer.....	687,832
Cattle guard, E. L. Arnold.....	688,221
Cement, manufacture of asphaltic, A. W. Dow.....	688,073
Centrifugal machine, J. W. Macfarlane.....	688,107
Chain, wire, W. B. Lashar.....	688,100
Chair, H. Mayers.....	687,894
Chair base, barber's, E. E. Koken.....	687,760
Chair bottom, Gilger & Grafton.....	687,741
Cherry pitter and fork, combined, J. A. Crandall.....	688,065
Chimney top, S. O. Streby.....	687,907
Choke piece, detachable, R. P. Cory.....	688,227
Cigar case, S. P. Coe.....	687,815
Cigar machines, interchangeable roller for, T. E. Carpenter.....	688,158
Cigar wrapper cutter and rolling table, combined, J. R. Williams.....	688,276
Clamp, T. Wrigley.....	687,809
Clamp, H. Jorgensen.....	688,236
Clamping dog, M. B. Hill.....	687,884
Clavicle, practice, C. Bergman.....	687,972
Clock, alarm, W. E. Porter.....	687,782
Clock, programme, South & Saunders.....	687,865
Clod crusher, T. J. Hubbell.....	687,961
Clothes line reel, O. N. Sanders.....	687,942
Clutch and brake, free wheel, R. W. Perry.....	688,262
Clutch, friction, L. W. Witry.....	687,808
Coal or rock drill, L. K. Koontz.....	688,182
Cock, automatic cylinder, C. L. Torrey.....	687,794
Coat, chape, K. Uehermann.....	688,211
Collapse box, A. Winter.....	687,807
Collar blanks, etc., machine for folding, Maitland & Beattie.....	688,000
Collar fastener, horse, D. Radcliff.....	687,783
Collar, iron, C. L. Cook.....	688,115
Combs, manufacturing celluloid, C. Ben-singer.....	688,223
Concentrator, S. W. Taylor.....	687,908
Concentrator, amaretator, and separator, combined, W. O. Journeay.....	688,096
Condiment holder, S. Svendsgaard.....	688,209
Confectionery, apparatus for preparing syrup for, E. Shaw.....	688,205
Cord cutter, S. H. Wiesedene.....	687,930
Corner plaster supporting strip, J. Koch, Jr.....	688,181
Cot, Bullock & Harford.....	687,722
Counter, E. W. Read.....	688,264
Counter, window, G. Chatterton.....	688,159

(Continued on page 395)

### ELECTRIC

### Search Lights

For Sea-going Vessels, Yachts and River Steamers.

U. S. Navy Standard Projectors.

Fully guaranteed. Send for Catalog "A."

### THE CARLISLE & FINCH CO.,

220 East Clifton Ave., CINCINNATI, Ohio.



**GRINDING MACHINES.** Emery and Solid Wheels of Adamite, Corundum and Carborundum. Also of Emery, Turkish or American, as may be desired. THE TANITE CO., Stroudsburg, Pa.



Can sell you a 2 1/2 H. P. Actual Gasoline Engine for \$125.00. Write us before buying.

Chicago Water Motor & Fan Co. 220 Lake Street, CHICAGO, ILL.



### SHIP'S BELL CLOCKS.

Pat. in U. S. and Gt. Britain. CHELSEA CLOCK CO., 16 State St., Boston, U.S.A. Correspondence solicited from responsible dealers in all cities of the World.



**WORLD AXLE GREASE** is the most Durable and Reliable Lubricant on the face of the globe. As a *Flow* Lubricant it has no equal. Samples 5 cents. Agencies wanted in every town and country at once. THE WORLD REFINING CO., Easton, Pa. Foreign Agents Wanted.

### DICKERMAN'S DURABLE DESKS

Don't buy until you get our catalogue 100 pages of money saving values.

AMERICAN DESK & STOOL CO., 33 Howard St., New York



Used by Metal Workers, Printers, etc. Write for catalogue CHAS. MORRILL, 201 BROADWAY, N. Y. CITY

**\$3.00 Canfield Coaster Brake.** Booklet Free. Fits any hub. Anyone can apply it. Address Canfield Brake Co., Corning, N. Y.

Patents, Trade Marks, COPYRIGHTS, etc., Address MUNN & CO., Solicitors of Patents. Office of the SCIENTIFIC AMERICAN 361 Broadway, New York. Branch Office: 625 F St., Washington, D. C. Hand-book Sent Free on Application.