would he in a condition of static equilibrium. I think the magnetic poles of the armature must move forward, turning the armature with them, while the brushes remain on the same segments of the commutators, and when they come on the next segment, so that the current passes through the next coil, the poles are recreated so to speak, one coil further back as regards direction of rotation, and again advance through the same angle, turning the armature, as before. Thus you have the motion necessary to produce energy. Is my idea correct? A. We think your idea is correct. 2. How much lead is it desirable to give the poles of the armature of a motor? A. Only enough to reduce the sparking to a minimum. 3. What would be the effect of too much lead? A. Increased sparking. 4. What would be the effect of no lead at all? A. It depends on the construction of the machine. If the machine requires lead to make it work to the best advantage, changing the brushes so as to give no lead would cause the machine to spark.

(4499) H. Z. writes: N. E. T. in Notes and Queries says his cigar lighter don't work properly. I have one like it. The probability is that his solution is polarized. If he washes the zinc and other elements and makes a new solution, he will find it works well. Two ounces each of bichromate of potash and sulphuric acid. Add water enough only to come within one-eighth inch of the zinc.

NEW BOOKS AND PUBLICATIONS.

A DICTIONARY OF ELECTRICAL WORDS, TERMS AND PHRASES. By Edwin J. Houston, A.M. Second edition, rewritten and greatly enlarged. 1892. New York: The W. J. Johnston Co., Limited. Pp. 562. 7×9½ inches. Price $5.

In this new edition of Professor Houston's dictionary there are over five thousand distinct titles with definitions and a superabundance of cross references. The definitions are concise and in the main accurate, and the illustrations are sufficient for the purposes for which they are designed. Taken altogether, the book is desirable and should be owned by every person who tries to keep up with these times, in which electricity plays so large a part. To the electrical engineer, electrician, and student of electricity, it is indispensable. Occupying as it does the pioneer position in the field, and being thus far the only work of its class, we bespeak for it the welcome it deserves.

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Toy, W. R. Park ... 480,619
Toy, A. A. Robinson ... 480,279
Traction engine, W. E. Richardson ... 480,626
Trap. See Animal trap.
Trimmer. See Sewing machine trimmer.
Trousers and similar garments, supporter for, C. S. Rogers ... 480,672
Truck, motor, J. A. Brill ... 480,362
Truck, railway car, E. D. Dorchester ... 480,495
Tub. See Mop tub.
Tubs, waste and overflow connection for cement laundry, Clifford & Gavin ... 480,692
Tug, hame, N. Siglin ... 480,629
Type setting machine, Hastings & Foster ... 480,497
Type writing machine, G. M. Beerbower ... 480,314
Type writing machine, C. H. Shepard ... 480,289, 480,290
Type writing machine, W. W. Street ... 480,677
Type writing machine, G. B. Webb ... 480,305 480,306, 480,641
Type writing machine cleaning attachment, S. Ford ... 480,257
Umbrella, folding, H. C. Ward ... 480,482
Umbrella rib, W. L. Uhlenhart ... 480,353
Umbrella stand, G. R. Davis ... 480,757
Unicycle, J. Imlah ... 480,585
Valve for elevators, automatic stop, H. J. Reedy ... 480,278
Valve for pneumatic tires, E. R. De Wolfe ... 480,400
Valve gear, W. H. Von Mengeringhausen ... 480,474
Valve mechanism, steam radiator, L. H. Prentice, et al ... 480,512
Valve, oil well, H. D. Jones ... 480,265
Valve, relief, A. S. Thoms ... 480,528
Valve, reversing, W. Miller ... 480,604
Vamp marking machine, J. F. Rogers ... 480,438
Vaporization of liquids, generator for the, L. Serpollet ... 480,286
Vehicle, C. Comstock ... 480,421
Vehicle, J. Spifford, Jr ... 480,442
Vehicle gear, Capwell & Fuller ... 480,691
Velocipede driving gear, J. Magennis ... 480,600
Vending machine, coin actuated, W. S. Van Sant ... 480,629
Veterinary truss, H. Haussmann ... 480,323
Wagon running gear, J. H. Baker ... 480,379, 480,380
Washing machine, C. Van Derzee ... 480,532
Watch chain attachment, J. C. Koch ... 480,430
Water and steam gauge combined, I. Willan ... 480,309
Water closet, E. Hammann ... 480,402
Water closet seat and cover, H. H. Sievert ... 480,292
Water closets, automatic valve operator for, J. S. Daniel ... 480,494
Weed exterminator, W. Vreeland ... 480,300
Wheel. See Fifth wheel. Gear wheel.
Wheel, R. Jewell ... 480,586
Whiffletree hook, H. E. Harris ... 480,465
Whip holder, J. E. Woodward ... 480,356
Windmill regulator, automatic, E. T. Crowe ... 480,399
Window, R. H. White ... 480,682
Window screen, H. B. Dodge ... 480,562
Wire coiling machine, W. Edenborn ... 480,564, 480,565
Wood carving machine, W. R. Snyder ... 480,524
Wood, means for ornamenting, C. L. Goehring ... 480,462
Wood moulding machine, F. H. Van Houten ... 480,443
Wool washing machine, F. G. & A. C. Sargent ... 480,283
Wringer. See Clothes wringer.
Wringing machine, J. W. Finegan ... 480,457

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Badge, E. Gash ... 21,758
Box, W. C. Estes ... 21,762
Brooch pin, T. Tugby ... 21,759
Carriage body, A. T. Demarest ... 21,773
Clutch frame, H. W. Hill ... 21,767
Coffin handle, O. McCarthy ... 21,775
Coffin plate, O. McCarthy ... 21,774
Confection, D. E. Mapother ... 21,760
Corkscrew, C. Puddefoot ... 21,761
Dental punch, C. E. Blake, Sr ... 21,771
Knife handle, G. W. Korn ... 21,766
Knob, door, R. W. F. Christesen ... 21,769
Lamp burner, F. Rhind ... 21,770
Match box, C. Osborne ... 21,768
Roofing tile, G. H. Babcock ... 21,772
Show case, F. B. Baldwin ... 21,763
Sink trap, H. C. Montgomery ... 21,776
Toy rattle, J. A. Crandall ... 21,764, 21,765

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Absorbent pads, I. D. Allen & Co ... 21,577
Ammonia alum, N. Waterbury ... 21,674
Baking powder, C. Amann ... 21,576
Baking powder, Potter Parlin Company ... 21,560
Chloride of sodium or common salt, T. Higgin & Co ... 21,600
Collars and cuffs, waterproof, Celluloid Company ... 21,573
Complexion cream, M. Van Buren ... 21,595
Fertilizer, natural and artificial, Durham Fertilizer Company ... 21,598
Flour, wheat, J. A. Graves & Co ... 21,582
Gloves, Dunham, Buckley & Co ... 21,581
Gloves, liquid preparation for cleaning, Glovine Manufacturing Co ... 21,585
Hooks and eyes, Richardson & De Long Bros ... 21,787
Lard and its substitutes, W. J. Wilcox Lard and Refining Company ... 21,603
Liquors except brandy, all spirituous and fermented, J. W. Nicholson & Co ... 21,571
Meat choppers and presses, Enterprise Manufacturing Company ... 21,599
Outer and under garments, misses' and children's, I. D. Jaynes ... 21,570
Paper, envelopes, cards, blank books, and paper badges, B. A. Johnson ... 21,601
Photographic dry plates, L. H. Baekeland ... 21,596
Photographic paper plates and chemicals, A. Schwarz ... 21,572
Remedies, catarrh, O. P. Smith ... 21,589
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Remedy for nervous disorders, W. H. Gannett ... 21,593
Shirts, linen, N. Hannach ... 21,569
Smoking pipes, Hirschl & Bendheim ... 21,578
Soda, bicarbonate of, N. Waterbury ... 21,575
Stone and its compositions, artificial, Pyrolith Company ... 21,579
Varnish, picture, G. H. Story ... 21,588
Varnishes, paints, japans, and analogous materials or compounds, N. Z. Graves & Company ... 21,584
Veterinary medicines and preparations, S. Pettifer & Son ... 21,786
Wheelbarrows, metallic, J. C. McNeil Company ... 21,602
Whisky, Wm. Bergenthal Company ... 21,594
Wringers, American Wringer Company ... 21,590 to 21,593

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