

ber of coils on an armature and not change the other dimensions, is it necessary to have an uneven number. A. The number of coils may be odd or even. 7. About what is the voltage of the motor? A. A current from one storage cell will run the motor. This has a pressure of 2 volts. 8. In charging a storage battery having on positive and negative plates red lead, is it necessary to reverse the charging current at each charge for the first few charges to form the plates? A. The charging current is reversed to and fro until the plate is formed.

(18183) W. J. L. asks: Will you please inform me of a simple motor that will have power to run a baby carriage, to have the commutator bars on the axle, that the speed can be increased or decreased, simple as a fan, that will take as small space as possible, and if brass will do as well as copper for the commutator, and if a storage battery will be better than any other as to the expense, strength and weight? A. There is no motor whose armature rotates as slowly as the wheels of a baby carriage; so if the armature of any existing motor were attached to the axle of a baby carriage the nurse would need a trolley car to enable her to keep up with her charge. You will have to design a special motor for the service. Brass will not answer as well as copper for commutator bars, since it is not as tough as copper. You would almost of necessity use a storage battery to run the motor, since no primary battery will last as long and give so little trouble in maintaining it.

NEW BOOKS, ETC.

THE COPPER HANDBOOK. By Horace J. Stevens. Author's edition. Houghton, Mich. 1900. 8vo, paper. Pp. 328.

This little volume is intended for a work of reference on the mines of the lake copper district of Michigan, whose annual profits, when active, are greater than those of any other mining district in the world with the single exception of the Witwatersrand in South Africa. In this region are situated the famous Calumet and Hecla mines, together with many others of interest. Full particulars and data regarding all these mines will be found in this volume, as well as geological and miscellaneous notes on the subject.

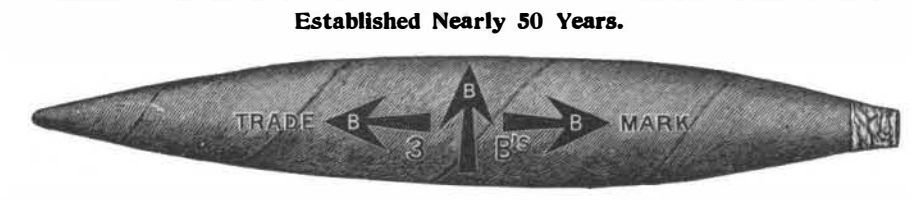
HIGH-SPEED STEAM ENGINES. By W. Norris and Ben. H. Morgan. 114 Pp. 115 illustrations. London: P. S. King & Son.

This little volume forms a practical handbook of modern steam engine practice. Thirty-five modern high-speed engines of English and American make are illustrated and described, and tests are inserted wherever accurate ones were obtainable. These descriptions are prefaced by a helpful chapter on the development and operation of this type of engine; and the book concludes with a description of the De Laval and Parsons steam turbines.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending APRIL 30, 1901, AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.]

Table listing inventions with names and dates, such as 'Abrading or polishing machine, C. S. Yarnell' and 'Acid to casks, means for supplying carbolic, F. Vollmann'.



A GOOD CIGAR AT ANY PRICE.

Advertisement for Brunita, Brunswick, and Bossy cigars, featuring 'THE 3 GREAT B's' and 'Guaranteed to give the consumer the most value for his money obtainable in Cigars.'

Table comparing Brunita, Brunswick, and Bossy cigars with prices: Brunita (\$10.00 for 100), Brunswick (\$7.50 for 100), Bossy (\$4.50 for 100).

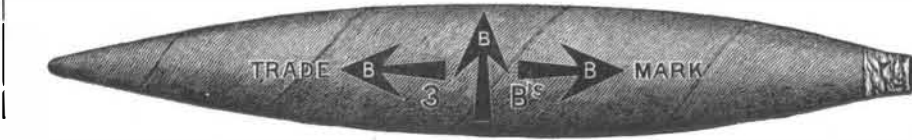
We will not tire you with the usual Parrot chatter that goes with most other brands of Cigars regarding their worth; our goods are on sale at all the leading stands, hotels and clubs in the United States. TEST THEM!

Advertisement for Brunita, Brunswick, and Bossy cigars, highlighting 'High Grade Vuelta All Havana' and 'The BRUNSWICK BRAND'.

Each Brand is made in a separate factory, thus avoiding any possible mistake in putting together the various tobaccos.

CONSUMERS, if you are not within immediate reach of our Cigars, we will forward you goods to any part of the world. We will endeavor to supply your regular dealer if you will kindly send us his name and address.

Advertisement for A. Montañez Company and Jacob Stahl, Jr., & Co., listing addresses and telephone numbers.



Large table listing various inventions and their patent numbers, including 'Calculator, G. Roegner' and 'Camera, panoramic, D. H. Houston'.

(Continued on page 301)