## NEW BOOKS, ETC

On the Springing and Adjusting of don: E. \&F. N. Spon. New York Spon \& Company. Pp. 152. 12ıo.
Thus volume containg a description of balance spring.
ing and the compensating balance, with directions for applying the springing and adjusting for isochronism an temperaturec. It $i$ is intended for thoee tolerably con versant with watch-making and those who desire guia nd therefore a knowledge of the many elementary branchces is assumed. While we are not particularl familiar with watch-making, we can see that the book fairly practical one for those who are engaged in this

A Practical Engineering Pocket Book For 1899 Manchester, Eng land: Limited. New York: D. Van pany, Limited. New York: D. Van
Nostrand Company. 1898. Price 60 reuts.
This annual compilation is an interesting little pocke book and contains coniderable information not foun
elsewhere. If an enginecr nowadays should have all th picket books which are publishel. he would have a foun ation for a fine engineering library. It is remarkable to ce what excellent matter is contained in the differen pocket books. The little volume before us is no excep
portland Cement. Its Manufacture AND USE. By Charles D. Jameson. pany. 1898. Pp. 192. 8 vo. Price

This monograph is the outgrowth of a short course of tulents of the State University of Jawn engine mortars, and cements. The book deals in a clear and gic:ll manner with the making of Portland cement, inluding the selection of raw materials, their proper treat ment by the different methous, the burning of this material with the types usea, teesting of Portland cement, the mparaive valeor dire cencms, he nee of Por nethods of mani pulation estimates of quan tities, costs tc. The book is eminently practical and scientifc and Twentieth Century Magic and the entieth Century Magic and the
Construction of Modern Magi duction of New Experiments. Me chanical. Chemical, Electrical, etc By Nevil Monroe Hopkins. New 160,100 illustrations. Price $\$ 1$.
The volume before us is a collection of magical trick It is written by an amateur and is dedicated "To the Amateur Conjurers of America and England." It shou be said in the beginning tbat it is an entirely differen work in scope from " Magic: Stage Illusions and Scien he Diversions, Inclading Thick Potography, of our Mr. A. A. Hopkins. "Twentieth Century Magic" deals our "Magic" concerns rather the actual tricks of the prestidigitateur, which were in many cases furnished by hemagicians themselves, or by their master machinist Having noted the marking distinction between the two books to prevent confusion, we have no hesitation in aying that "Twentieth Century Magic" is an admirahl collection of new and clever tricks, and, as the autho says, it is primarily designed to furnish an additional
field for the amateur to operate in as well as constructive ccupation, if be has a mechanical turn of mind. As such will undoubtedly prove of value to the amateur, and the professional conjurer may also glean some valuable ints which will doubtiess prove useful to him. The illues rations are very largely in the line of working drawing printed and bound.
Proceedings of the Tenth Annual
MEETING OF THE ASSOCIATION OF
Economic Entonologists. Wash 1898. Pp. 104.

The work which is done by the goverament ane
reditable to Dr. Howard and his assistants. The pre ent pamphlet is the proceedinge of the meeting whic was held in Boston, August, 1898, and contains a numbe f papers of interest to all who are in auy way connecte with practical entomology
Die Technische Verwerthung des Sieinkohlentheeres. Nebst einem Anhange: Ueber die Darstellung des natarichen Asphalttheeres und Asphaltmastrix aus den Asphalt
steinen und bituıuinösen Schiefern sowie Verwerthung der Nehenpro ducte. Von Dr. Georg Thenis. Vieuna: A. Hartleben. Pp. viii, 216 8 vo . Price 60 cents.

The rapid development of organic chemistry within the last forty years has been largely due to the particit tarly exhaustive study of certain organic bodies. The oromh examination of comparatively few compound hemical theories. Among these organic changes e mentioned the producte of the distillation of coal tar many of which have plased a not unimportant part echnical chemistry. Substances euch as benzol, pheno naphthalin, anilin, and the other derivative of coal tar, cars theauthor of this work has been engaged in the manufacture of benzol, nitrobenzol, phenol, anilin, and ther coal tar products, and of aephalt and asphalt ce ohlentheere," containing as it docs information obainedfrom the experience of years, should be of mor han usual interest to chemista engaged in the making of coal tar.

Business and Personal.
he charge for insertion under this head is one Dollar a Advertisements must be received at publication offic as earty us Thursday mornino to appear in the follo

Marine Iron Works. Cbicazo. Catalorue free
For boisting engines. J. S. Mundy. Newark. N. J. "U. S." Metal Polish. Indianapolis. Samples free. C. E. Sontum \& Co., Cbristiania, Norway, M frs. Agts. Gasoline Brazing Forge, Turner Brass Works. Chicag Yankee Notions. Waterbury Button Co.. Waterb's. C Bee keepers, send for 1899 catalogue
J. H. M Cook, to Cortlandt St. New York.
Gear Cutting of every description accurately don , New volume Model Engineer begins now. Annua
ub., 73c. Spon \& Cbamberlain, 12 Cortlandt, New Yor. The cebrated " Hornabs-Akrogd" Peter safetr Engine is built by the De La Vergne Refrigerating $M$ chine Company. For t of East 138 th Street. New York. The best book for electrictuans and beginners in ele ricity is "Experimental Science," by Geo. M. Hopkins mail, 64. Munn $\boldsymbol{\&}$ Ca. .Dablishers. 31 Broadway, N . Roche's "New Standard" Filectric Necktie Pin
Works like a charm. Midget Battery. The electric ligbt is a beauty and a monder. Sent postpaid for $\$ 1.00$ Agents wanted. Wm. Roche, 259 Greenwich St., New \%
QR- Send for new and complete catalogue or Scientif vem York. Mee on appliction

## 皿

IINTS TO CORRESPONDEN'I
Names and Address must accompany all letterè
or no attention will be paid thereto. This is for our
information and not for publication.
eferences to former articles or answers should give date of paper and page or number of question
In ulites not answere in reasonabile time should
年 repeatea : correspondente will bear in mind that We repeated: correspondente will bear in mind that
Bome answers require not a lithle research, and
though we endeavor to reply to all either by lette or in this department. each must take his turn
Burs
yers Buyers wiehing to purchase any article not ad
in our column will be furnished with add
housee manufacturing or carrying the same.
Special Wanifacturng or carrying the same.
personal rather than general interest on manters of ot
expected without remuneration.
Scientific A merican Supplements referre
to mas ebad at the offce Prie 10 cente ach
Books referred to promptiy Bupplied on receipt o
price.
Minerals sent for examination should be distinctly
markeo or labelea.
(7587) A. C. S. writes: I have several cells of bichromate of potassiuns battery, so arranged the
the zincs can be raised from the solution; when not in use The rods and zinc holders are made of brass, After bein hargeda few days a salt begins to cover the parts men tioned and I fear will, af ter a time, destroy them. With what shall I coat the brass parts to properlyprotectthen
rom the action of the acid $\%$ A. To prevent the acid of tery from climbing and reaching the brass fittings, pro ced as follows: Dip the upper end of the carbons in melted paraffine till they are completely saturated for an sphaltumuarnish Of course the cellsmust be takento pieces and the plates thoroughly washed and dried before reating them.
(7588) F. A. B. asks : 1. Would four cells of battery, each giving 1.75 volts and 6 amperes, when A. Yes. 2. Would this light six 7 candle lamps (con eected in parallell), each of 7 volts and 1ampere \& A. Yes, theoretically, but practically, no. 3. About how longwould an ordinary battery of this Bize run that num run down very rapidy. It is like taking the dam of a reervoir away all at once for the purpose of drawing out The cell is used up all at once
(7589) G. S. Y. asks: How is rubber dis olved for the use of moulding tips for crutches, shoes, hape. Wubear send yot dissolved, but is vulcanized into on rubber manufacture on receipt of 30 cents, which will give you full information regarding the manufacture of (7590) "Subscriber
describes a dyries and for compound winding how to wind it for eries and for compound winding, both of teld and ar cuit. He finally asks what would be candle pawer en erated by it. The whole frame is only 41/6 inches long. A The machine is a toy of no real use. Wind it up with No 26 or 28 magnet wire. A cell or two of battery will make it turn. Scientific American Supplement, No. 600 , price 10 cents, contains drawings of connections, (591) A. 0 Jrites : wish
(7591) A. A. C writes: I wish to stain a number of glass clectric light globes. What chemicals
shall I use, and how use them? Red, blue, and greenare he colors 1 wish to use. A. 1. Prepare the glass by dioroughly washing in Boap and water and drying. Then in $11 /$ pound or pint of water and filtering. and hang up o dry. Dissolve the aniline coior in photographer's common collodion. 2. Red or blue aniline will form clear solutions, while the green solution will require filtering. . Yellow aniline forms a handsome color, but the surface of the цlass presents a frosted appearance after the application. 4. Violet and parple colors may be obties. When the solution is ready, dip the prepared glass bul bs therein, hang up to dry, and finally pass a current hrough the bulb for half an hour, that the heat thus
generated may harden the coating of the collodion, or place in a curreut of air. 5. The preparation can easily
be removed with alcohol or sulphuric ether, but is n
affected by water. Experience has shown that the he he color light rather than dep
(7592) L. P. asks: 1. What are th methods for making the different kinds of imitation woods ? A. Imitation woode are made by staining and for a full account of staining and graining imita all kinds of wood, $\$ 5$ by mail. 2 . Why is it that the lowest part of music sung by female voices is the alto While if played on an instrument it is the tenor? $A$ We cannot agree with your statement concerning the ot become tenor when played, though the ranges of the Ito and of the tenor have many notes in commo The usual range of the parts in music, as given in the "Encyclopedia Britannica, vol. 4 , is as follows: Bass, fro $F$ below bass C to include middle C ; baritone, from A below bass C to include E above midale C ; tenor, from bass $C$ to include $G$ above midale $C$; alto or contralto, nozzo soprano from $G$ to include $B$ above middle eezzo soprano, from $\mathbf{G}$ below middle $\mathbf{C}$ to include $\mathbf{D}$ o to include Fof octave above middle C. By this table you will see that even bass and soprano have two notes in common, $B$ and mddle $\mathbf{C}$, but a baes voice does not come sop rano by singing middle $\mathbf{C}$.
(7593) J. H. B. asks: Hasany substance either animal, vegetable, or mineral matter, either liquid an resist and is not penetrated by the electric wave which pass through the ether ? A. We suppose thatelec ric waves to some extent penetrate most substances, bu not with equal ease. Electric waves are also reflected by heet metal, ref racted by a lens of pitch, and polarized
hy gratings of parallel wires. All these changes suggest a degree of resistance to the waves which retards american Supplement, Nob. 718. 720, 734, 967, 968, 969 , price 10 cents each, for the work of Hertz; "Ele nentary Lessor:s in Electricity," Thompson, price $\$ 1.40$
and Lodge's "Modern Views of Electricity," price $\$ 2$.

## O INVENTORS.






## INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted JANUARY 31, 1899,

AND EACH BEARING THAT DATE. (See note at end of list about copies of these patents.)








$\qquad$














|  |
| :---: |
|  |  |
|  |  |
|  |  |



618,450
61892
618,515
6


