NEW BOOKS, ETC.

Animated Pictures. By C. Francis Jenkins. Washington. 1898. Pp. 118. Price \$2.50.

The volume before us deals with the development of moving photography and is written by an inventor of a successful machine. His advice on the technical aspect of the subject is very valuable, and there is no doubt it will be interesting to many photographers. Formulas for developing negatives and positive films, etc., will prove of great value. The book is well illustrated.

THE BUTTERFLY BOOK. A Guide to a Knowledge of the Butterflies of North America. By W. J. Holland. New York: Doubleday & McClure Company. 1898. Pp. 382. Price \$3.

The time has arrived when theroughly scientific books especially books on natural history, with proper plates and illustrations, can be sold at a price which puts them within the reach of even the scientific student, whose purse is proverbially small. The volume before us is not only a work for the student of natural history, but for the library as well. and any publisher who will issue a beautiful book of this kind deserves the hearty commendation and support of the entire scientific press. The splendid quarte is illustrated with forty-eight beautifully executed plates in color photography and hundreds of illustrations. It is printed in clear type on handsome paper with generous margins and has the handsome green top which is infinitely more artistic than the gilt top. Dr. Holland's book deals also with the capture, preparation, and preservation of insects and gives in-formation which is perfectly invaluable to the beginner. Of the scientific aspect of the book we can only say that the reputation of the Chancellor of the Western University of Pennsylvania rests on too sure a foundation to need any belstering up. Dr. Helland is emphatically the American authority on butterflies, and has written this book with the aim of popularizing their study. It should be noted that the plates are photographed directly from the butterflies themselves, and present to a degree the exact tones and shades of the originals. They represent the highest mark yet reached in color photo

OUR NAVY IN THE WAR WITH SPAIN. By John R. Spears. New York: Charles Scribner's Sons. 1898. Pp. 406. Over 100 illustrations. Price \$2.

This very timely and interesting work really forms the

fifth volume of the author's well known "History of Our Navy," with which it agrees in general style of text and illustrations. The latter, however, are superior to those of the earlier volumes, presenting more technical detail and possessing a corresponding value. The story of the war, which is written in the author's well known and characteristic style, commences, as it properly should, with some account of the causes which led up to the recent hostilities. The first two chapters deal with the ten years' insurrection, the third and fourth describe the birth and growth of the new navy, and the fifth is devoted to the causes which led to the sending of the "Maine" on her fatal mission to Havana. After two chapters devoted to the preparations for war and the war message, the stery of the actual struggle commences, and the interest is easily sustained throughout the 250 pages that fellew. The author gives a strong flavor of the sea to his story of the war, and its stirring events are brought before the eye with vivid distinctness. The last chapter, on our new naval programme, is particularly valuable, for the reason that here, as elsewhere, the author does not fear to indulge in that free criticism of the weak points of our navy without which any adequate progress is impossible. The subjects for illustration are well chosen and include the ships. the heroes of the war, and various scenes of the struggle both on sea and land. We note that in the last chapter many of the illustrations are reproduced from the pages of the Scientific Ameri-

THE PRACTICAL COMPOUNDING OF OILS TALLOW, AND GREASE FOR LUBRICATION, ETC. By an Expert Oil Refiner. London: Scott, Greenwood & Company. New York: D. Van Nostrand Company. 1898. Pp. 96. Price \$3.50.

A practical work by a practical man is always of standard value. The volume before us treats comprehensively the subject of hydrocarbon oils, animal and fish oils, compound oils. vegetable oils, lamp oils, machinery

THE SPEED LATHE. By A. G. Compton and James A. De Groodt. New York: John Wiley & Sons. 1898. 12mo. Pp. 134. 99 illustrations. Price \$1.50.

The book before us is the first of a series of three on advanced metal work, giving lessons on the speed lathe, gine lathe and planing machine for the use of technical schools, manual training schools, and amateurs. with the present one, we can only say that they will make one of the most important contributions ever made to the new extensive literature of manual training. We have often wondered why an adequate work on the speed lathe was not written, as these lathes are in use in every school in the United States where manual training is taught. The illustrations are most admirable, and they are so clear that men the amateur, without previous instruction, can learn to do splendid work with their aid. In addition to wood turning and pattern making, brass turning, metal spinning, and burnishing are also included. The book is a most admirable one, and is worthy of a very large sale.

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We have just printed a new edition of De Brevans "Manufacture of Liquors and Preserves." This will doubtless be welcomed by some of our readers, as the former edition was entirely exhausted and some of our customers were only able to obtain copies at a considerable advance on the published price. We are now able to supply copies as wanted.

Business and Personal.

The charge for insertion under this head is One Dollar line for each insertion; about eight words to a line Advertisements must be received at publication as early as Thursday morning to appear in the follow

"U. S." Metal Polish. Indianapolis. Samples free. C. E. Sentum & Co., Christiania, Nerway, Mfrs. Agts. Gaseline Brazing Ferge, Turner Brass Werks, Chicago Yankee Notions. Waterbury Button Co., Waterb'y, Ct. Handle & Spoke Mchy. Ober Lathe Co., Chagrin Falls, O. Schwaab Stamp & Seal Co., Milwaukee. Send for cat'g. Bee keepers, send for 1899 catalogue of supplies. J. H. M Cook, 60 Cortlandt St., New York.

Machine Work of every description. Jobbing and re pairing. The Garvin Machine Co., 141 Varick St., N. Y. Patent for sale entire, or wanted manufactured on revalty, the bettle shewn on page 100, this issue. Address as in notice.

For Sale-U. S. patent on Tellurian described in this paper February 11, 1899. Charles J. Boehm, 409 Seventh St., Milwaukee, Wis.

Grease Can patent noticed on page 108 of this issue for sale. Address inventor, Alden Crocheron, 206 N. 2d West St., Salt Lake City, Utah.

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HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated: correspondents will bear in mind that some answers require not a little research, and, though we endeaver to reply to all either by letter or in this department, each must take his turn.

Bu yers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

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Minerals sent for examination should be distinctly marked or labeled.

(7594) F. S. G. asks: How many feet of No. 18 bare iron wire (B. & S. gage) will it take to make a core 11 inches long and 1 inch in diameter? Core to be used in an induction coil. A. There are several ways of solving this problem, which we give to show others as well as you how to help themselves. 1. Find the weight of a bar of iron of the size of the core, from the specific gravity of iron, 7.75 about. This will give a weight of wire somewhat greater than is needed, but iron wire is cheap. 2. Find the area of the end of the core, a circle 1 inch in diameter, and divide this by the area of cross section of the wire, taken from a wire table. This will give the number of pieces approximately. An error will be due to the fact that no allowance is made for the spaces between the wires. 3. Find the number of wires which, laid side by side, will fill one inch. Multiply this number by itself, and you will have the number which will go into a square inch. Multiply this by the area of a circle 1 inch in diameter, and the product is the number of pieces of wire which are required for the core. This multiplied by 11 will give the length required in inches. No. 18 wire B. & S. is 0.04 inch in diameter, therefore 25 pieces laid side by side will occupy one inch, and 625 pieces will fill one square inch. A circle 1 inch in diameter contains 0.7854 square inch exactly. Multiply 625 by this, and you find 491 pieces 11 inches long are required. It would be exact enough had we said a circle 1 inch in diameter is about 34 of a square inch, and 34 of 625 is about 475. You will probably not get more than greases, etc. It is filled a ith valuable receipts and tables 475 pieces into the space, since you will not be able to straighten them perfectly or to bind perfectly solid.

(7595) W. W. D. writes: I recently magnetized an ordinary black steel pin (the head having been removed) by rubbing it on a ledestone. I am greatly puzzled by the behavior of a compass needle when the magnetized pin is brought near to it. The north pole of the compass needle is repelled by each end of the pin iudifferently and the south pole of the needle is attracted If the other volumes of the series compare in any way by each end of the pin. Further, the middle of the pin strongly attracts the north pole of the needle and repels the south pole. This upsets all my notions of magnetism. Can you give me any light on the subject? A. You have evidently made a magnet with south pole in the middle and north poles at each end. To do this you must have rubbed both ends of the pin on the same pole of the lodestone. This is not a new thing, though such a magnet seems very curious. Such a magnet can be made by winding one-half of the length of a bar with wire in one direction, and bending the wire back, wind the other half of the har in the opposite direction. Now send the electric current through the wire.

> (7596) G. W. F. asks: 1 What kind of steel is used in the manufacture of permanent magnets? A. The best tool steel should be used. 2. To what extent hardened or tempered? A. Hardened glass hard at the ends, by heating end red hot and plunging into water. 3. What is the best method of magnetizing them? A. Magnetize the bar by a coil of wire through which a strong current of electricity is flowing. See answer to query No. 7185.

> (7597) J. D.-Write again, giving your full name and address.

INDEX OF INVENTIONS
For which Letters Patent of the
United States were Granted

FEBRUARY 7, 1899,

AND EACH BEARING THAT DATE.

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

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

Addeninal bandage, S. E. Cook
Add and making same, naphrbylene-diamin-suific, J. W. Hyatt.

Advertising device, C. S. Stafford
Air Drack hose coupling, T. M. Hall.

All prack hose coupling, T. M. Hall.

All prack hose coupling, T. M. Hall.

And and making same, naphrbylene-diamin-suific, J. W. Hyatt.

Fire excappe, Watson & Stevenson.

Fire exchangulater, chemical, W. M. Spera.

All Drack hose coupling, T. M. Hall.

All prack hose coupling, T. M. Hall.

Bale reluging and pad ferming machine, E. J.

Bar for Jails etc. R. C. & W. A. Stewart.

Basket making machine, W. Jackson.

Bale pracking and pad ferming machine, E. J.

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Barrier, J. W. F. J. Steps.

Barrier, J. J. Steps.

Barrier, J. W. F. J. Steps.

Barrier, J. J. J. Steps.

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PROPOSALS.

Commission NEW EAST RIVER BRIDGE, City of New York. Notice to Contractors.

FEBRUARY 3, 1899.

Proposals will be received by the Commissioners of the New East River Bridge, at their office at No. 49 Chambers Street, in the Borough of Manbattan, in the City of New York, at two oclock in the afternoon of the 8th day of February, 1899, endorsed "Proposals for Construction of Steel Towers and End Spans of the New East River Bridge," for furnishing the materials for and constructing the Steel Towers and End Spans of the New East River Bridge," for furnishing the materials for and constructing the Steel Towers and End Spans of the New East River Bridge, and presented to End the crawing the Materials for and constructing the Steel Towers and End Spans of the Board of Commissioners of the New East River Bridge, and presented to him on that day and at that hour at said office, and such bids will be opened in public meeting by the said Commissioners on that day at two o'clock in the afternoon.

Copies of the specifications and the general drawings for the work, with the proposed forms for the bid, bond and contract may be seen, and further information will be given at the office of the Chief Engineer, No. 84 Broadway, Borough of Brooklyn, City of New York, on and after the 6th day of February, 1899.

Particular attention is called to the following changes which have been made In the specifications and draw-Institute and the specifications and the specifications of the specifications: "But Broadway, Borough of Brooklyn, City of New York, on a shall read thus: "28. All steel shall be acid open which have been made In the specifications shall read thus: "28. All steel shall be acid open hearth, made by the pig and ore process from stock satisfactory to the Engineer."

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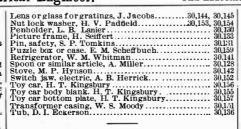


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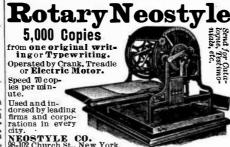
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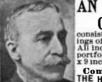
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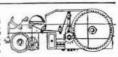
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