glass to enable one to see the bottom of a lake, derth from 50 to 100 feet, water clear as crystal. I notice in "Scribner" mention made of a water glassin use for such purposes on the eastern coast and islands, but does not state how made. A. Any small telescope with a large objective and an eyepiece of very low magnifying power will answer very well for this purpose, provided the joint of the object glass is watertight.

(24) L. D. W. asks: In throwing water through 200 feet of hose with fire engine is the pressure on first length of hose greater than of any others? If so, why? A. When discharging, yes; because the friction of the additional length of hose expends a portion ILLUSTRATED RECORD OF BRITISH PATENTS. of the pressure in the first length.

(25) J. P. S. asks whether in dies used for cutting shect iron blanks both dies must be tempered, or whether it will suffice to temper the female die only and let the male die be soft so it can be peaned up when dull. The sheet iron to be cut is 27 and 28. A. Both dies should be tempered.

(26) I. H. B. asks: 1. What is the best lubricant for the main journals of large engines? I use clean cotton waste with lubricant on top of it; the waste serves to catch the grit if any and mitigate the flow of hot oil. Is there anything better? A. Some of the special mineral oils are used as you describe. 2. Should cylinder cocks be left open in running when they are made to work automatically and the engine works equally well with them shut? A. No. 3. Whose work best treats of heat and power as applied to mechanical forces? A. "Cotterill on the Steam Engine as a Heat Engine." 4. Which is the most economical in practice, a single cylinder expanding the steam down to the atmospheric line, or a compound engine of the same initial capacity-steam pressure and vacuums of each being equal and making the same number of revolutions per minute? A. Theoretically there should be no difference, but practice favors the compound engine.

(27) J. H. A. writes: I notice that nearly all force and lift pumps have an air chamber through which the water is forced. Is the chamber any advantage except to deliver the water in a continuous stream. and perhaps make the force a little easier; and does it make the lift more effective? A. The use of an air chamber is to prevent shocks, or "water hammer," in the pipes, and render the delivery more uniform. It does not make the pump more effective.

(28) F. A. B. asks: Would it be possible to carry steam 300 feet through 21/2 inch pipe well covered, with 100 lb. pressure to drive engine? What lineal expansion would there be, and what loss by condensing, etc.? A. Yes; the pressure at the engine would probably be 3 lb. to 5 lb. less than at the boiler when the engine is running. Expansion 61/2 to 7 inches. Condensation depends upon covering, it may be from 0.08 to 03 lb. water per square foot of surface per hour.

(29) G. W. G. writes: I am making a Holtz electric machine, from directions in Supplement No. 279, with a 12-inch revolving plate. 1. On which side of the apertured glass are the paper inductors pasted. Also, are the gilt papers on the same side as the inductors? A. The inductors and gilt paper are on both sides of the glass. 2. Is it necessary that the spindle holding the revolving plate be perfectly insulated? A. No. 3. Can anything else but vulcanite be uesd to excite the mechine? A. Anything that will generate enough electricity will answer but vulcanite is probably the best.

(30) M. S. asks: Can wrought iron anvils plated on the face with steel be retempered? If so, what is the best way to temper them? A. You can try the experiment by filling a vessel (large enough to contain the anvil) with water; place bricks or other support for the anvil, so that the top of the anvil will be about one inch below the top of the vessel; have a hogshead or tank filled with water and elevated 5 to 10 feet above, with a pipe from it so arranged as to discharge water on the face of the anvil. When the anvil is properly heated lower it into the first tank face upward, then open the pipe from the higher tank to discharge the water on the face of the anvil till it is cooled. When you open this pipe. keep away from the anvil, as if any portion of the steel is not welded, it may crack and fly off with considerable force.

## NEW BOOKS AND PUBLICATIONS.

OPHTHALMIC OPERATIONS, WITH REMARKS ON AFTER-TREATMENT: THE OPHTHAL MIC USE OF QUININE AND ITS THERAPEUTIC ACTION. By A. Sibley Campbell, M.D., Augusta, Ga. 8vo pamphlet, pp.

The first of these papers consists of a description of several cases of diseases of the eye which came under the author's treatment, and which form the basis of certain remarks which he subsequently makes in regard to the after-treatment in cataract extraction and other sur cal operations on the eye, together with a consideration of the therapeutical action of quinine in such cases Among the manifold applications of quinine in diseased conditions of the system It is found especially applicable in abnormal conditions of the eye, whether these have resulted from disease or from surgical procedures. Nowhere in the text books on therapeutics is there given or attempted a generalization of the action of this valuable remedy. In the paper before us, the author attempts to supply this wide-felt deficiency by enunciating the following views, which are essentially those published by Dr. Robert Campbell in 1858-9. The prominent and specific action of quinine is due to its direct influence on the vascular system through its power of contracting the blood vessels, acting thus on their middle or muscular coat. and hence on the unstriped, assisted, possibly, by the elastic fibers constituting that structure. This action is primarily on the blood vessels, especially on the small arteries, where muscular fiber predominates, and without the intermediary action of the vasomotor system. Possibly the vasomotor system afterwards aids in the process of contraction; but if so, only secondarily, by the same general influence now exerted, with the rest, on its own circulation. Hence exerted, with the rest, on its own circulation. Hence Car, stock, S. Bray 21,600 Mechanical movement, J. Harris, Jr. 241,652 the action of quinine on the vascular system is that of a Car, stock, H. Cull. 241,623 Metals with zinc, coating, H. Roberts 241,721 constringent, and its effects may be termed syntonic.

(23) M. R. G. asks how to make a water | Such being the action of the remedy on the vascular system at large, the explanation of its therapeutic influence in abnormal conditions of the eye follows as a corollary. LATHE WORK. By Paul N. Hasluck. London: Crosby, Lockwood & Co.

Amateur turners will find in this well made book a handy treatise on turning tools, appliances, and processes. The author has evidently wrought out his knowledge of the lathe at the lathe, while his experience as editor of a journal largely devoted to mechanics has taught him both the popular need of the information he gives and the art of conveying practical instruction directly and clearly.

January to March 1, 1881. London: Office of the Engineer.

For many years the Engineer has printed from week to week abstracts of all the patent specifications filed in the British Patent Office. It has now with commendable enterprise, begun to reprint periodically these specifications with illustrations, indexes, reports of patent decisions, and related matters, after the manner of the official United States Patent Gazette. There can be no question of the public utility of such a periodical, and it does not speak well for the British authorities that such a work is left to be done by private enterprise.

A MEMORIAL OF JOSEPH HENRY. Published by order of Congress. Washington: Government Printing Office.

A special edition, on tinted paper with wide margins, of the Henry memorial volume. It contains the proceedings in Congress with respect to the commemo tion of Professor Henry's life and services; obsequies; memorial exercises at the capitol; memorial ceedings of societies, and the proceedings in Congress regarding the erection upon the grounds of the Smithsonian Institution of a bronze statue of the late Secretary of the Institution.

HISTORY OF WOMAN SUFFRAGE, Edited by Elizabeth Cady Stanton, Susan B. Anthony, and Matilda Joslyn Gage. In two vols. Vol. I. 1848—1861. New York · Fowler & Wells.

The editors have aimed to put into permanent shape the scattered reports of the woman suffrage movement still to be found, and to gather an arsenal of facts and arguments for the furtherance of the movement-" the first organized protest against the injustice which has brooded over the character and destiny of one half the human race " The work is illustrated by finely engraved steelplate likenesses of Frances Wright, Ernestine L. Rose, F. D. Gage, Clarinda I. Howard Nichols, Paulina W. Davis, Lucretta Mott, Amelia Bloomer, Susan B. Anthony, M. C. Wright, Elizabeth Cady Stanton, and Matilda Joslyn Gage.

THE DETECTION AND CORRECTION OF VISUAL IMPERFECTIONS WITH TEST TYPE. By Dr. C. A. Bucklin. New York: Spencer Optical Manufacturing Company.

Although specially intended for the guidance of dealers in eyeglasses and similar aids to imperfect vision, this little manual may be of use to any one who wishes to inform himself as to the nature of the more common eye troubles and the character of the glasses best suited to delay, relieve, obviate, or cure such disabilities. The book is practical, clear, and reasonably free from technicalities

## [OFFICIAL.]

## INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were

Granted in the Week Ending May 17, 1881.

AND EACH BEARING THAT DATE [Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for one dollar. In ordering please state the number and date of the patent desired and remit to Munn & Co., 37 Park Row, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

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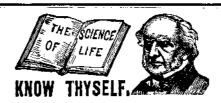


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