

not, why? And how much difference will there be at 12 o'clock noon? A. We should infer yours to be a horizontal sun dial, and will give correct time only in latitude for which it was made, save when sun in meridian; because the gnomon or style by which the shadow is cast must be placed parallel with the polar axis of the earth, and the base upon which the shadow is cast parallel with the horizon, both of which cannot be done when a change of latitude is made. If the style of your dial is set truly in the meridian of your place, and depressed to correspond with your latitude, it will give you 6 o'clock A.M. and 6 o'clock P.M., also the exact sun or true time, at noon.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

W. N. W.—Galena—lead sulphide, a rich lead ore. It probably carries a little silver—worth assaying.

COMMUNICATIONS RECEIVED.

- On the Motion of the planets. By A. K.
On a New Theory of Planetary Movement. By J. H. S.
On the Declination of the Magnetic Needle. By J. L. R.
No Current in Magnets. By W. B. F., M.D.
On Protecting Oil Tanks from Lightning. By W.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

August 17, 1880.

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.

Table listing various inventions such as 'Advertising, automatic device for', 'Air brake for railway trains', 'Axe cutting device', etc., with corresponding page numbers.

Table listing various inventions such as 'Gas, apparatus for the purification of coal', 'Klönne', 'Gas burner, J. F. Barker', etc., with corresponding page numbers.

DESIGNS.

Table listing designs such as 'Carpet, D. McNair', 'Carpet, T. J. Stearns', 'Coffin plate, W. M. Smith', etc., with corresponding page numbers.

TRADE MARKS.

Table listing trade marks such as 'Blacking, harness, T. C. Pritz', 'Brushes such as have brushing surfaces of bristles', etc., with corresponding page numbers.

English Patents Issued to Americans.

From August 13th to August 17, 1880, inclusive.

Table listing English patents issued to Americans such as 'Axe box, S. A. Bemis, Springfield, Mo.', 'Biscuit, app. for spreading jam upon, U. S. Ovens, Buffalo, N. Y.', etc.

Advertisements.

Inside Page, each insertion... 25 cents a line. Back Page, each insertion... \$1.00 a line. Engagements may be made... as the letter press. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Advertisement for 'THE BREATH, LIPS, TEETH, AND MOUTH, and the Physical Signs derivable therefrom' by G. V. Moore, M.D. Includes an illustration of a human head in profile.

Advertisement for 'PERFECT NEWSPAPER FILE' by Munn & Co., Publishers Scientific American. Includes an illustration of a newspaper file.

Advertisement for 'PERFECTED STYLOGRAPHIC PEN' by Munn & Co., Publishers Scientific American. Includes an illustration of a stylographic pen.



TOOLS for Machinists, Carpenters, Amateurs, Jewellers, Model Makers, Blacksmiths, etc. Send for Catalogue, and state what kind of Tools you require. TALLMAN & McFADDEN, 607 Market St., Philadelphia, Pa.

THE ORIGIN OF FALLING MOTION.—By Charles Morris. An interesting study of the form of energy which creates motion. Its origin in the moving bodies themselves as real motion, existing previously in some other form and converted as needed into the form of mass motion. The various modifications of active energies which exist as constituent forces of all matter. Electrical, magnetic, chemical, cohesive, and temperate energies; their specialized and generalized forms. Heat force. Gravitational energy. Transformation of heat motion in falling bodies. Loss of mass motion followed by increase of temperature. Interesting deductions made from applying the ideas herein given to the motion of planetary bodies, which are shown to be gravitation not a creator of motion, but its influence only directive. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 240. Price 10 cents. To be had at this office and from all newsdealers.

FREE TO ALL!

Wishing to introduce our great Literary and Family Journal, The Fireside at Home (a mammoth 8-page, 40-column illustrated paper, size of N. Y. Ledger, devoted to Literature, Useful Knowledge, Amusement, and every thing to delight and instruct the whole family) into thousands of new homes where it is not readily taken, we will send it, Free for Three Months to all who send Ten Cents (in silver or postage stamps) to pay postage and help pay the cost of this advertisement. The regular price is \$4.00 per year, but we are willing to give the paper away for three months and lose its cost, in order to introduce it to new readers. By taking advantage of this offer you will secure all the brilliant holiday issues and enlarged numbers soon to be published, and an amount of valuable and attractive reading matter for the approaching Long Winter Evenings, which could be secured in no other way for four times the amount. Send at once, and if you can conscientiously say, after your subscription has expired, that you have not received double the value of the ten cents—yes, and more—we will make you a present of a \$1.00 bill. Address: F. H. LIPTON, Publisher, 27 Park Place, New York.

ENLARGED COLLOID TRANSFORMERS.

By Geo. Dawson, M.D. An explanation of the whole mode of procedure in making this class of enlargements, so clearly and succinctly stated that any one who knows how to take a good negative will be able, by reading the author's directions, to secure an enlarged positive, and as perfect as the character of the negative will permit. The optical apparatus, The chemicals, The development, To transfer the picture, Concluding remarks. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 243. Price 10 cents. To be had at this office and from all newsdealers. The same number contains articles on 'Some Experiments with Asphalt for Photographic Purposes'; 'Photo-plates for Woodburytype, Old and New'; and 'A New Developer.'



TO FOUNDERS AND MACHINISTS.—FOR SALE, A Patent Right. Address ISAAC H. WRIGHT, No. 132 East Monument St., Baltimore, Md.

The National Institute of Steam Engineering, Bridgeport, Conn., can furnish Nov. 1 a number of sober, reliable, and trustworthy Engineers (graduates of this institution), who are good mechanical draughtsmen, can do steam and gas fitting and plumbing, are judicious and economical in the use of fuel, and who can erect, operate, and maintain in running order and repair, with the greatest attainable economy, any steam machinery or steam boilers that are used. Applications received now.

ON VIRULENT DISEASES, AND ESPECIALLY ON THE DISEASE COMMONLY CALLED CHICKEN CHOLERA.—BY M. PASTEUR.

An important paper in which are presented by the author certain new facts which throw an unexpected light on the problems raised by the study of virulent diseases; these facts having been ascertained by a recent careful investigation of the fearful poultry disease known as "Chicken Cholera," and the results of which investigation are herein given in detail. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 242. Price 10 cents. To be had at this office and from all newsdealers.

FLEUSS' DIVING APPARATUS.—BY B. W. RICHARDSON.

An interesting lecture delivered before the Society of Arts, in which is reviewed the history of diving, and the attempts that have been made by men of science to live under water; with a description of Fleuss' new diving dress, which enables the wearer to can do steam and gas fitting and plumbing, are judicious and economical in the use of fuel, and who can erect, operate, and maintain in running order and repair, with the greatest attainable economy, any steam machinery or steam boilers that are used. Applications received now.

LIQUID FUELS FOR STEAM ENGINES.

The opinion of an expert as to the economic value of naphtha as a substitute for coal in the production of heat and the generation of motive power. The recent experiments on the Long Island Railroad with naphtha fuel, and their results. Claims of the inventor of the Holland hydrocarbon retort. The modus operandi of the apparatus, and a criticism of the inventor's claims. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 238. Price 10 cents. To be had at this office and from all newsdealers.



NAVIGATION OF THE AIR.—BY FRED. W. BREARY, Hon. Sec. to the Aeronautical Society of Great Britain. A review of what has thus far been accomplished toward a solution of the problem of aerial locomotion; the errors of former experiments pointed out; and the present and future aspect of the question considered. The direction in which future experiments should be made in order that success may be attained. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 241. Price 10 cents. To be had at this office and from all newsdealers.

PLATTSMOUTH BRIDGE OVER THE MISSOURI.

Details of construction of new bridge now in process of building across the Missouri River, below the city of Plattsmouth, Nebraska. Length of bridge, 3,000 feet; east approach, 2 miles long; west approach, 1 mile; permanent bridge of 2 through spans, 400 ft. each, 3 deck spans, 200 ft. each, and 1,500 foot iron viaduct. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 239. Price 10 cents. To be had at this office and from all newsdealers.

INDIAN CORN.—BY LOUISA REED STOWELL.

A microscopic examination of Indian Corn, showing its structure of kernels, structure of starch grains, etc., and accompanied by a concise description of this valuable grain, giving its chemical composition, its properties as a nutrient, and the various forms under which it appears in market. Illustrated with six figures. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 237. Price 10 cents. To be had at this office and from all newsdealers.