

\$200,000 WORTH OF RIFLES.

The Largest Transaction in Sporting Arms on Record.

A NOTEWORTHY EVENT TO ALL SPORTSMEN. The Evans Rifle Co., manufacturers of the world-renowned twenty-six shot Evans Rifle (whose factory is at Mechanics Falls), has been complimented by both American and foreign manufacturers as the most extensive and complete in the world, have taken a signal, and in the face of the advance in firearms, a most commendable step. The Evans is the most expensively made, and has hitherto been the highest priced of all magazine or repeating rifles, embodying as it does a marvelously ingenious action, and carrying in its magazine (which is entirely within the stock, necessitating no outward addition) twice the number of larger cartridges than any other arm. The Evans is a phenomenal shooter, being accurate up to 1,200 yards, and every shot can be discharged in less than one minute. This arm has commanded the admiration of every sportsman in Europe and America who has used it, and it is as common in the best hunting grounds of Germany and France as in our own West, which would be a remarkable fact, prone as foreign sportsmen are to use homemade weapons, if it was not that the Evans is the only repeating arm in existence carrying enough cartridges in its magazine for a whole day's sport, and having that magazine entirely concealed within itself and in the stock, where the weight should be, not under the barrel, varying the "hang" of the arm with every shot. To return to the subject, the Evans Rifle Company have run their factory to its utmost capacity for the past two years, and have thereby accumulated an immense stock of rifles made at the lowest possible figure obtainable under the most favorable circumstances. The price of the Evans has hitherto been \$40 and upward, and it was well worth it; but now the Evans Rifle Company propose, though it is in the face of a fierce opposition from the trade, to reduce the price of their arm to \$35 and \$20, thus placing the finest and most complete repeating rifle in the world on the par peculiarly with a common single shot rifle. The only reason for this reduction is a desire to place with the reach of all the best repeating rifle in the market, and supplant many of the cheap, unsafe arms now in use. This is a step all the more commendable from the opposition it has met with from the trade, who wished the former high prices and big profits maintained; and the thanks of all sportsmen are due to a company actuated by these motives, especially at a time when the tendency in all branches of trade is to unnecessarily advance prices and profits.

The Evans Rifle Company have transferred their entire product to the warerooms of the well known Boston house of G. W. TURNER & ROSS, whose facilities for conducting this immense sale are unsurpassed, and through that firm will be offered over six thousand of the new and latest improved model Evans rifles at half former list prices, and the sportsmen of all countries will not be slow in taking advantage of the offer. We refer the reader to the advertisement and the testimonials of such well known shots as A. J. Boyd, Texas Jack, and others.—Adve.

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue. The publishers of this paper guarantee to advertisers a circulation of not less than 50,000 copies every weekly issue.

Charl's Extra Heavy Machinery Oil. Charl's Anti-Corrosive Cylinder Oil. Charl's Patent Lubricene and Gear Grease. R. J. Charl, Sole Proprietor, 6 Burling Slip, New York. Collection of Ornaments.—A book containing over 1,000 different designs, such as crests, coats of arms, vignettes, scrolls, corners, borders, etc., sent on receipt of \$2. Palm & Fechteler, 403 Broadway, New York City. Mr. Henry D. Hall (of the late firm of Hall & Benjamin) is now located with Messrs. J. & H. Berge. See their advertisement on page 236.

The Eureka Mowing Machine now is acknowledged as the best in the market. It has taken the first premium in nearly every State Fair this year. Prices to suit the times. Send for illustrated circular to Eureka Mower Company, Towanda, Pa.

For the Globe Street Lamp, address J. G. Miner, John St., Morrisania, New York City.

The Boomer & Boschert Press Co. have in daily operation, at the Am. Inst. Fair, a complete cider mill and cider jelly manufactory. New York Office, 15 Park Row.

50,000 Sawyers wanted to send their full address for Emerson's Hand Book of Saws (free). Over 100 illustrations and pages of valuable information. How to straighten saws, etc. Emerson, Smith & Co., Beaver Falls, Pa.

H. W. Johns' Asbestos Liquid Paints are strictly pure linseed oil paints, and contain no water. They are the best and most economical paints in the world. Send for samples to the H. W. Johns Manufacturing Company, 87 Maiden Lane, New York, sole manufacturers of genuine asbestos materials.

Money wanted to secure Foreign Patents. Home patent allowed. Address Jeweler, Box 34, Whitakers, N. C.

Packing once tried always used. Phoenix Packing from 1-16 up in spools or on coils. Phoenix Packing Company, 108 Liberty St., N. Y.

Schenck's Planers and Matchers, Resawers, Scroll Saws, etc., etc. H. B. Schenck, Matteawan, N. Y.

Wanted, by a young Optician, a situation with a manufacturer of optical instruments. Chas. S. Minnich, Gratiot, O.

The great advantage of the genuine Asbestos Coverings for Steam Pipes, Boilers, etc., over any other forms of non-conducting coverings, aside from their superior effectiveness and fireproof qualities, is that they are manufactured in convenient form, ready for use, and can be easily applied without the aid of skilled labor. The H. W. Johns Manufacturing Company, 87 Maiden Lane, New York, are the sole manufacturers.

Electric Batteries, Wires, Bells, and Materials. Catalogue free. E. M. Wood & Co., Worcester, Mass.

Gas Machines.—Be sure that you never buy one until you have circulars from Terri's Underground Meter Gas Machine, 39 Dey St., New York.

Brick Presses for Fire & Red Brick, and Brickmaker's Tools. S. P. Miller & Son, 309 South Fifth St., Phila., Pa. Eclipse Portable Engine. See illustrated adv., p. 189.

Small Brass and Iron Rivets made to order by Blake & Johnson, Waterbury, Conn.

Experts in Patent Causes and Mechanical Counsel. Park Benjamin & Bro., 50 Astor House, New York.

Corrugated Wrought Iron for Tires on Traction Engines, etc. Sole mfrs., H. Lloyd, Son & Co., Pittsburg, Pa. Malleable and Gray Iron Castings, all descriptions, by Erie Malleable Iron Company, limited, Erie, Pa. 4 to 40 H. P. Steam Engines. See adv., p. 189.

Skinner & Wood, Erie, Pa., Portable and Stationary Engines, are full of orders, and withdraw their illustrated advertisement. Send for their new circulars.

Sweetland & Co., 126 Union St., New Haven, Conn., manufacture the Sweetland Combination Chuck.

Power, Foot, and Hand Presses for Metal Workers. Lowest prices. Peerless Punch & Shear Co., 52 Dey St., N. Y. The Brown Automatic Cut-off Engine; unexcelled for workmanship, economy, and durability. Write for information. C. H. Brown & Co., Fitchburg, Mass.

Recipes and Information on all Industrial Processes. Park Benjamin's Expert Office, 50 Astor House, N. Y.

For the best Stave, Barrel, Keg, and Hoghead Machinery, address H. A. Crossley, Cleveland, Ohio.

Best Oak Tanned Leather Belting. Wm. F. Forpaugh, Jr. & Bros., 531 Jefferson St., Philadelphia, Pa.

National Steel Tube Cleaner for boiler tubes. Adjustable, durable. Chalmers-Spence Co., 40 John St., N. Y.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocum & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Stave, Barrel, Keg, and Hoghead Machinery a specialty, by E. & B. Holmes, Buffalo, N. Y.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, importers Vienna lime, crocus, etc. Condit, Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Presses, Dies, and Tools for working Sheet Metal, etc. Fruit & other can tools. Bliss & Williams, B'klyn, N. Y.

Hydraulic Jacks, Presses and Pumps. Polishing and Buffing Machinery. Patent Punches, Shears, etc. E. Lyon & Co., 470 Grand St., New York.

Sheet Metal Presses, Ferracute Co., Bridgeton, N. J.

Wright's Patent Steam Engine, with automatic cut off. The best engine made. For prices, address William Wright, Manufacturer, Newburgh, N. Y.

National Institute of Steam and Mechanical Engineering, Bridgeport, Conn. Blast Furnace Construction and Management. The metallurgy of iron and steel. Practical Instruction in Steam Engineering, and a good situation when competent. Send for pamphlet.

For Yale Mills and Engines, see page 173.

Reed's Sectional Covering for steam surfaces; any one can apply it; can be removed and replaced without injury. J. A. Locke, Agt., 32 Cortlandt St., N. Y.

Burgess' Non-conductor for Heated Surfaces; easily applied, efficient, and inexpensive. Applicable to plain or curved surfaces, pipes, elbows, and valves. See p. 234.

Blake "Lion and Eagle" Imp'd Crusher. See p. 25.

Peck's Patent Drop Press. See adv., page 204.

C. J. Pitt & Co., Show Case Manufacturers, 226 Canal St., New York. Orders promptly attended to. Send for illustrated catalogue with prices.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 205.

Saw Mill Machinery. Stearns Mfg. Co. See p. 205.

Improved Solid Emery Wheels and Machinery, Automatic Knife Grinders, Portable Chuck Jaws. Important, that users should have prices of these first class goods. American Twist Drill Co., Merethville, N. H.

Leather and Rubber Belting, Packing, and Hose Greene, Tweed & Co., 118 Chambers St., N. Y.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'f'rs, 234 St., above Race, Phila., Pa.

The \$4 Drill Chuck sent free on receipt of price. A. F. Cushman, Hartford, Conn.

Diamond Saws. J. Dickinson, 64 Nassau St., N. Y.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's adv. p. 220.

For Wood-Working Machinery, see illus. adv. p. 221.

For Separators, Farm & Vertical Engines, see adv. p. 220.

Tight and Slack Barrel machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 221.

Elevators, Freight and Passenger, Shafting, Pulleys and Hangers. J. S. Graves & Son, Rochester, N. Y.

Blake's Belt Studs are best and cheapest fastening for all belts. Greene, Tweed & Co., N. Y.

For Patent Shapers and Planers, see illus. adv. p. 220.

Steam Engines; Eclipse Safety Sectional Boiler. Lambertville Iron Works, Lambertville, N. J. See adv. p. 141.

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 221.

Improved Steel Castings; stiff and durable; as soft and easily worked as wrought iron; tensile strength not less than 65,000 lbs. to sq. in. Circulars free. Pittsburg Steel Casting Company, Pittsburg, Pa.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 221.

Catechism of the Locomotive, 625 pages, 250 engravings. The most accurate, complete, and easily understood book on the Locomotive. Price \$2.50. Send for catalogue of railroad books. The Railroad Gazette, 73 Broadway, New York.

For best low price Planer and Matcher, and latest improved Sash, Door, and Blind Machinery, Send for catalogue to Rowley & Hermance, Williamsport, Pa.

Elevators.—Stokes & Parrish, Phila., Pa. See p. 221.

Penfield (Pulley) Blocks, Lockport, N. Y. See adv. p. 221.

Wiley & Russell M'f'g Co. See adv., p. 190.

NEW BOOKS AND PUBLICATIONS. INFORME QUE EL DIRECTOR DEL OBSERVATORIO METEOROLOGICO CENTRAL PRESENTA A LA SECRETARIA DE FOMENTO ACERCA DE LOS TRABAJOS VERIFICADOS EN AQUELLA OFICINA DURANTE LOS ANOS DE 1878 Y 1879. Mexico, 1880. This is a beautifully printed pamphlet of 88 pages, giving a full report of the work accomplished by the Mexican Observatory during the years 1878 and 1879.

From it we learn that the observatory does not confine itself strictly to astronomical work, but extends its operations to the investigation of the physical conformation of the country and to its natural productions. The relations of the climate to the health of the people; the distribution of plants and their time of flowering and perfecting their seeds; the influence of the atmosphere on the vital phenomena of plants; geographical explorations, etc., all come within the scope of this scientific institution's labors. This report is interesting as showing how much has been accomplished by the observatory during the comparatively short time that it has been in operation, as well as how great an advance in science our Mexican neighbors have made during recent years; and the account of the work herein given is the best proof that could be afforded of the importance and utility of an observatory like that which is so ably presided over by Professor Mariano Barceña.

REPORT ON THE GEOLOGY OF THE HENRY MOUNTAINS. By G. K. Gilbert. Washington: U. S. Government Printing Office.

The Henry Mountains are in Southern Utah, on the right bank of the Colorado of the West, and are a group of five mountains separated by low passes and arranged without discernible system. The highest rise about 5,000 feet above the surrounding plateau, their extreme altitude above the sea being somewhat over 17,000 feet. They were named after the late Professor Joseph Henry, and offer an exceptionally favorable field for the study of structural geology. As described by their explorer they mark a limited system of disturbances, which interrupt a region of geological column, and structurally as well as topographically stand by themselves. All the Henry Mountains exhibit dome like uplifts caused by a peculiar intrusion of porphyritic-trachyte between and under strata ranging from carboniferous to cretaceous. The igneous rock, instead of overflowing the surface and forming mountains in the usual way, stopped at a lower horizon and formed a vast cistern deep below the surface, lifting up the superior beds. The essential element of this type of mountain structure is called by M. Gilbert the laccolite, the study of which furnishes a novel and most suggestive chapter in structural geology.

REPORT ON THE LANDS OF THE ARID REGION OF THE UNITED STATES. By J. W. Powell. Second Edition. Washington: Government Printing Office.

The arid region of the United States comprises the larger part of the great Rocky Mountain region, where the mean annual rainfall is insufficient for agriculture. A small percentage of the area is irrigable, about a quarter is timber land, and the rest is divided between pasture lands and deserts. Professor Powell and his assistants treat of the physical characteristics and requirements of these different classes of land, as regards settlement and utilization, rainfall, water supply, the lands of Utah, land grants in aid of internal improvements, etc.

THE ENGINEER'S HANDY BOOK. By Stephen Roper. Philadelphia: E. Claxton & Co. pp. 678.

A well-made pocket book of practical information for mechanical engineers, particularly those of limited education, and such as may wish to qualify themselves for service in the U. S. Navy or the mercantile marine. The more important engines in use are clearly described and formulæ are given for estimating their power. Particular attention is paid to the Steam Engine Indicator, its use and advantages. The author has had much experience in this class of work, and writes clearly and plainly.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

(1) J. H. G. writes: I built a skiff after the plans in No. 26, SCIENTIFIC AMERICAN SUPPLEMENT, and it is a good one. I built it strictly to the plans except the rowlocks. I took a piece of 2x4 hard pine, 20 inches long, and had a pair of thole pins made to go in; the pins were 5 inches long in the shaft part. I like it better than your plan. The boat proved to be a good one. It runs easy, and takes but little water and sets flat, so that with one in the stern and the oarsman, it does not stand up in the bow out of the water and look ridiculous. One thing about this boat, it will not tip or upset—safe in every way. Please give me a solution of the figures representing the tables in No. 39, for the sailing canoe? For instance, in table No. 1: rib, 85—rib A and 1, 15'62. I, being an amateur boat builder, do not understand these figures. A. These figures are the distances from the center line to the outside of frames on the several horizontal lines shown in first diagram. 2. Is there any process by which nickel plating can be done by friction same as can be done by the amalgam of a looking glass? If so, where can the nickel powder be procured? A. Nickel cannot be applied in this way.

(2) B. R. writes: I am building a steam yacht which is forty-five feet long over all. I have her planked, and wish to know what would be best to calk her with, and if marine glue would answer the purpose of pitch for the seams, and which of the two would you advise me to use? A. Wetkink marine glue would answer your purpose well. 2. What size boiler and engine would I require with a 40 inch screw? A. Engine 8 inch cylinder by 8 inch stroke; boiler 46 or 48 inches diameter by 6 feet high.

(3) C. H. H. asks: What degree Fah. would rightly express the temperature of an object which is four times as cold as ice, supposing ice to be just at 32° Fah.? A. According to popular usage, 96° Fah., or 96° below zero. The expression is, however, incorrect, since the word cold implies the absence of heat.

(4) R. M. writes: 1. I am going to build a hunting and fishing boat, about 4 feet wide by 14 feet long, decked over, and to weigh between 300 to 400 lb., and I want to know if I could use a screw propeller worked with gear wheels and operated by hand? A. Yes. 2. If so, how large should the propeller be, and how many revolutions should it make? I don't care so much for speed as I do for the convenience. A. 14 to 16 inches diameter. It should be geared to make 300 to 350 revolutions per minute.

(5) J. W. B. asks: Can engravings be transferred to mother of pearl? If so, how? A. Coat the shell with thin white copal varnish. As soon as the varnish becomes sticky place the engraving face downward on it and press it well into the varnish. After the varnish becomes thoroughly dry moisten the back of the engraving and remove the paper very carefully by rubbing. When the paper is all removed and the surface becomes dry, varnish lightly with copal.

(6) A. H. E. asks: By what process can beeswax be cleaned from comb and other substances which do not belong in it? A. Agitate it with about five times its weight of boiling soft water, cool, collect the wax, remelt and pass it through a fine linen strainer. It may be bleached by agitating it with hot water containing a small quantity of chloride of lime (wax 56, water 56, bleaching powder 7 lb.). When it has become white it is purified from the lime by the addition of a sufficient quantity of hot dilute sulphuric acid (acid 1, water 9), then repeatedly boiled with plenty of fresh water, collected, fused at a gentle heat, and kept in this condition until all adhering water has been driven off.

(7) G. A. L. asks if crude petroleum is what is used for fuel for steam boilers. Can I get what I want at the oil refineries, and is it more or less explosive than kerosene oil? Is there any danger of explosion from an open tank if kept cool? A. Generally crude petroleum is used for fuel; it is more explosive than kerosene used in lamps. There is great danger in having a light or fire near an open tank.

(8) F. E. K. writes: In the fall of 1877, while experimenting with the then comparatively new Bell telephone upon a metallic circuit, several hundred feet long, it occurred to me to pass the current through the body of a person. Cutting the line and placing the ends in the hands of my assistant, much to my surprise was able to talk with much distinctness. Other persons were added until four were included in the circuit, the volume diminishing with each addition. I then took the terminals of the line in my hands, and, with the telephones in a convenient position, actually transmitted my own voice through my own body, and distinctly heard the voice of the person at the other end of the line after it had passed through my own body. Physiologists can here find a wide and interesting field.

(9) F. S. asks: 1. Can I learn engineering from books alone, studying at home. If so, what books are required? Name some, please, for a new beginner. A. No; but you can with advantage study engineering books, while going through a practical education in a good workshop. "Bourne's Catechism of the Steam Engine," and "Roper's Catechism of Steam Engine" are suitable to begin with. 2. Is it necessary to serve an apprenticeship as machinist? If so, how long? A. Yes; the length of time depends upon the ability, attention, and energy of the apprentice.

(10) C. M. B. asks: 1. Which will draw the hardest, a wagon with a small axle or one with a large axle? A. Large. 2. Which will shoot the farthest, a rifle or a smooth bore, with the same powder? A. Rifle.

(11) J. P. P. asks: What will be the amount of water that would flow through half and three-quarter inch gas pipe, say two miles long, with from 400 to 600 feet fall to the mile? I wish to set my mill at the foot of mountain, and bring the water down for steam and for use about the houses, etc. A. Half inch pipe under 600 feet head, 34 cubic feet per minute; three-quarter inch pipe, under 600 feet head, 94 cubic feet per minute.

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

A. J. L.—An impure fire clay. Might be useful for the manufacture of cheap pottery, drain pipes, tiles, etc.—J. C. H.—Chiefly clay—probably contains a small amount of lime phosphate.—A. S.—The powder consists chiefly of mica scales.—A. P. W.—Quartz with mica scales—probably contains traces of gold.

English Patents Issued to Americans.

From September 3 to September 7, 1880, inclusive. Amalgamator, P. B. Wilson, Baltimore, Md. Belting for machinery, G. S. Long, Hartford, Conn. Cigarette machine, C. G. & W. H. Emery, N. Y. City. Cigarette machine, E. Side, Brooklyn, N. Y. Packing boxes, machinery for manufacture of, F. Myers, New York City. Packing boxes, machinery for dressing the edges of, F. Myers, New York City. Printing upon wooden cases, F. Myers, New York City. Shutters, revolving, J. G. Wilson, New York City. Valve, J. T. Hancock, Boston, Mass.