

RECENTLY PATENTED INVENTIONS. Engineering.

EXHAUST NOZZLE.—Charles W. Umholtz, Bristol, Va. This invention provides an improved locomotive exhaust having a main central and supplemental surrounding passage...

VALVE GEAR.—Fred. E. Smith, Boston, Mass. A rocker is yieldingly connected through springs with the eccentric rod, the rocker being also connected with the valve stem and, by a piston, with an auxiliary fluid cylinder...

Railway Appliances.

CAR COUPLING.—Charles W. Stillians, Pueblo, Col. This device is more especially designed for a freight car coupling. A normally elevated vertically sliding link tilter is located in the rear of the link-engaging portion of a coupling hook or arm pivoted in the drawhead...

CAR COUPLING.—Hampton K. Smith, Union, S. C. This coupler comprises a drawhead capable of an interlocking connection with an opposing drawhead, while valve heads are carried by the drawheads to receive the air pipes for air brakes or steam pipes...

ILLUMINATING TRACKS.—William E. Ferguson, Montclair, N. J. This invention provides means whereby one or more lights may be arranged between the rails of a track for lighting up the roadbed, the lights being so arranged that trains may pass over without injuring them.

Mechanical.

CLUTCH.—Daniel T. Denton, Duluth, Minn. A strong, durable, and effective friction clutch is provided by this invention, the friction faces of which may be held in contact without exerting longitudinal or endwise pressure on the shaft...

Miscellaneous.

MUSICAL INSTRUMENT.—Dwight Kemp-ton, Summerland, Cal. An improvement designed to greatly enrich the tone of stringed instruments, such as pianos, and whereby also the weight of the instrument may be reduced, has been devised by this inventor.

PENCIL POINTER.—Frank E. Flagg, New York City. The casing of this device has a socket plate with a conical bore to receive the pencil, the bore extending through a beveled face of the plate...

EASEL ATTACHMENT.—Henry J. Muhlfeld and Frank J. Spillane, New York City. To enable a student to sketch from casts or life in a crowded school room, the canvas or drawing board needs a support and adjustment not easily obtained...

WINDOW CHAIR.—Adolph Boettcher, South Stillwater, Minn. This is a scaffold or chair constructed in two side sections, adjustably connected by a bar, forming a light and strong structure, which can be quickly fastened in a window to extend outward beyond it, being readily removable from one window to be carried to another.

VELOCIPEDE.—Martha E. Slocum, Meadville, Pa. The depending seat frame of this vehicle has outwardly projecting arms at its upper end, on which the hubs of large wheels are journaled...

WHIP SOCKET.—Henry E. Schreuder, Manteno, Ill. This invention relates to whip sockets having locking devices to prevent the whip from being abstracted. The socket has at one side a lock case, in which is a transverse slide rack with an external operating handle...

SIDE REFLECTOR.—Charles E. Plumtree, Spokane Falls, Washington. A reflector support which may be readily applied to any lamp is provided by this invention, the arrangement being such that the reflector can be moved to any position to throw the light where desired.

ADDRESSING MACHINE.—John P. O'Malley, Manistee, Mich. A type galley containing a series of addresses, at spaced distances apart, is supported on a longitudinally sliding carriage in a suitable frame. An impression block operated by a treadle effects the impression as the paper or envelope is held over the type bearing the desired address...

SNATCH BLOCK.—Adams C. French, Seattle, Washington. This invention provides an inexpensive and durable block for hoisting purposes, which may be readily detached from its hook, and which is connected with the hook in such a way that the frame cannot spread.

PUMP.—Melchi M. Grove, Garfield, Washington. This is a simple form of pump, which may be partially submerged in water, and which, by means of air pressure applied to the chambers, is designed to pump water rapidly.

GRAIN CUT-OFF.—Philander D. Thompson, Neligh, Neb. This invention relates to a combined cut-off and delivery spout for feed hoppers in granaries, elevators, and mills, providing a device which is inexpensive, and which can be operated either to cutoff the supply completely or to cut it off from one point and direct it to another.

STOVEPIPE COUPLING.—Francis P. Hart, Strasburg, Pa. This coupling consists of a sleeve piece having one end folded to double its thickness, and longitudinally notched, the unjoined edges of the sleeves having hooks folded internally...

ANIMAL SHEARS.—Charles and Harry Burgen, Main Bridge, near Sheffield, England. This invention relates to improvements in instruments for shearing or clipping sheep or other animals, and provides improved means for applying and adjusting the pressure of the upper cutters upon the lower cutters, relieving the axis of the vibrating lever as far as possible from all bending strain.

WINDOW FRAME AND SASH.—John Anderson, Hickson, North Dakota. According to this invention, one of the parting beads and one of the inner beads of the window frame are provided with a movable section, connected crank shafts in the frame connecting the movable beads to move them to and from the sashes, to permit the latter to swing outward.

NEW BOOKS AND PUBLICATIONS. RAILWAY CAR CONSTRUCTION. By William Voss. New York: R. M. Van Arsdale. 1892. Pp. 177. No index. Price \$3. Railway car construction, under the auspices of the Master Car Builders' and Master Mechanics' Association...

HIGH MEDICAL CULTURE. By W. R. Dunham, M.D. Cambridge: Printed for the author. 1892. Pp. 225. No index. Price \$1. The author of this work believes that the present tendency of the schools is to teach medical practice without the science, and, as far as they attempt to teach medical science, to teach it incorrectly.

THE METAL WORKER ESSAYS ON HOUSE HEATING. Arranged for publication by A. O. Kittredge. New York: David Williams. 1892. Pp. 407. Price \$3. This work is the outcome of prize essays on steam, hot water and hot air heating of dwellings, originally published in the Metal Worker.

BULLETIN OF THE PHILOSOPHICAL SOCIETY OF WASHINGTON. Vol. XI. Washington: Printed by Judd & Detweiler. 1892. Pp. xxxi, 618. Quite a large range of scientific subjects is contained in this volume of reports. Geology and astronomy are perhaps the controlling motives of the proceedings.

ELEMENTS OF MACHINE DESIGN. By J. F. Klein. Bethlehem, Pa.: The Comenius Press. 1892. Pp. vi, 212. Price \$6. Professor Klein has published the foregoing elements with notes and folding plates for the use of students in the Lehigh University.

STREET RAILWAYS. By C. B. Fairchild. New York: The Street Railway Publishing Company 1892. Pp. vii, 441. Price \$4. The above work is of interest as testifying to the enormous extension of the street railway industry. The introduction of electric and cable traction has greatly expanded the field of work.

FOURTEENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF CONNECTICUT. For the year ending November 30, 1891. With the registration report for 1890 relating to births, marriages, deaths, and divorces. Printed by order of the legislature. New Haven: Tuttle, Morehouse & Taylor, printers. 1892. Pp. xxxvii, 447, 202.

PRIMITIVE MAN IN OHIO. By Warren K. Moorehead. G. P. Putnam's Sons. 1892. Pp. xv, 246. Price \$3. The deeply interesting work in archeology and anthropology executed in Ohio during the recent years with particular reference to late discoveries is given in this book in most attractive shape.

SADDLE AND SENTIMENT. A story of the turf. By Wenona Gilman. The Outing Company, Limited. 1892. Pp. 284. Price 50 cents. Horse racing, the development of man's noblest servant, under the auspices of the enthusiastic Kentucky horseman, the excitement of the race track interwoven with a thread of romance so as to weave the whole into the form of an attractive novel are the matter of "Saddle and Sentiment."

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Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price.

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INDEX TO NOTES AND QUERIES.

Table with 2 columns: Index to Notes and Queries, No. Chemicals... 4508, Dynamo construction... 4503, Engineering... 4512, Electrical... 4505, 4505, 4505, Preserving food products... 4503, Gas and steam engines... 4507, Pneumatic street cars... 4515, Recovery of bodies that are drowned... 4513, Thunder... 4504.

(4503) H. B. P. writes: 1. Some arc dynamos, the Wood for instance, have two brushes on each side of the commutator, with several bars of the commutator between them. Kindly explain the reason for using the two brushes. What advantage is gained? Why is no arc formed at the brushes by the short-circuited coils? A. The object in arranging the brushes as stated is to cut out a portion of the armature winding, thus reducing resistance and giving the conductors time to cool. 2. I have been told that arc lamps connected in multiple series on an incandescent circuit will consume the + and - carbons equally fast. Is such the case? A. This will not occur unless the carbons are of unequal size, or unless the current is an alternating one. 3. Will you advise me if there is any book on arc lamps?—the trouble in them, how found, and remedied? A. There is no book treating on arc lamps of all descriptions. We believe that most manufacturers of arc lamps publish information for the benefit of users.

(4504) G. M. R. asks: How is the noise we call thunder produced or caused? Is a side crank on steam engine stronger or in any way better than a center crank? Why does oil or any other lubricant aid a cutting tool in metal, since it certainly cannot touch the cutting edge? Experience has shown that lard oil used in cutting a thread for a tap makes a smoother job than most other oils, and as it could get no nearer the cutting edge, I fail to see what different action it has. A. The cause of thunder and of its prolonged noise is not well understood. According to some the action is similar to the explosion of powder in a gun. When lightning strikes a tree or building, the noise is intensified by the sudden disruption of the solid material, as the splitting of a tree or the tearing apart of the materials of a building. All lubricants depend upon their conductivity of heat to keep the edge of the tool and the metal operated upon, cool.

