

NEW BOOKS AND PUBLICATIONS.

AERIAL NAVIGATION. By the late Charles Blachford Mansfield M. A. Edited by his brother, R. B. Mansfield. Price \$5.00. New York city. Macmillan & Co., 21 Astor Place.

This is a curious book. It is probably the most elaborate treatise on its subject extant; yet it is written by one who never made a balloon ascension in his life, never saw more than half a dozen balloons, never made any long study of the question, and so on through a series of negatives which would imply utter ignorance of the whole subject attempted to be considered.

THE APPLICATIONS OF THE PHYSICAL FORCES. By Amédée Guillemin. Translated from the French by Mrs. Norman Lockyer; Edited, with Notes, etc., by J. Norman Lockyer, F.R.S. Illustrated. Price \$12.50. New York city: Macmillan & Co., 21 Astor Place.

This work is devoted to the popular exposition of the practical applications of the laws of physics; and the publishers have left nothing undone, in the way of exquisite engravings (some beautifully colored), elegant paper, binding, and printing, to make the volume thoroughly attractive.

RECENT ADVANCES IN PHYSICAL SCIENCE. By Professor P. G. Tait. Second Edition, revised. Price \$2.50. New York city: Macmillan & Co., 21 Astor Place.

The lectures of which this volume is composed were delivered by Professor Tait before a number of professional men of Edinburgh, who wished to obtain a notion of the chief advances made in natural philosophy since their student days.

Messrs. Slocum, Woodman & Co., 119 and 121 William street, New York city, are the publishers of Mark Twain's new "adhesive scrapbook." The erudite author, explaining his production, says: "I have invented and patented a new scrap book, not to make money out of it, but to economize the profanity of this country."

Inventions Patented in England by Americans.

From December 22, 1876, to January 15, 1877, inclusive.

- BOILER.—C. V. Lloyd, Decorah, Iowa.
BOILER FURNACE.—A. F. Upton, Boston, Mass.
BOOT, ETC.—L. R. Blake, Boston, Mass.
BRECH-LOADING GUN.—C. H. Pond (of Bridgeport, Conn.), London, Eng.

Recent American and Foreign Patents.

NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED BALE TIE.

Peter Harden, New York city.—The free end of the band is coiled upon itself by means of a turning key or other suitable device, and the coil being on the under side of the slotted buckle, it serves to hold (by friction) the other end of the band which is looped around the buckle, but not riveted.

IMPROVED SPIKE PULLER.

Joseph Douglass, McConnellstown, Pa.—This invention relates to an improved device for extracting railroad spikes. It consists in a sliding fulcrum arranged to rest upon the surface of the rail, provided with legs to prevent it from turning, and having upon its upper surface graduated steps of increasing elevations arranged part upon one side and part upon the other of the plate, and in connection with which a lever carrying a pivoted grapnel is adapted to operate; the grapnel being arranged to clutch the heads of the spike, while the lever is operated upon the different steps of the sliding fulcrum, beginning with the lowest near the spike and working toward the highest until the spike is extracted.

IMPROVED SOLDERING MACHINE.

Peter Dillon and John Cleary, Sherbrooke, P. Q.—The two plates comprising the body of the can are bent into suitable shape by a divided die. The solder is discharged through the hollow soldering tool as its valve opens when the bath of molten solder moves forward and the soldering tool passes over the side seam of the can.

IMPROVED PEG FLOAT.

Tilghman F. Lippengood, St. Louis, Mo.—The cutter proper is reciprocated by a vibrating lever operated by a crank. The cutter is reversible on its bearing to adapt it to rasp and remove the ends of the pegs both at the heel and toe of a boot or shoe. It is secured in either position by means of a spring catch or locking device.

IMPROVED PUMP VALVE.

Garret D. Hopper and William H. Laufkotter, Sacramento, Cal.—The invention consists in the valve stem, made rectangular in its lower part and round in its upper part. Across the lower part of the valve box passes a crossbar, through which is formed a rectangular hole which receives the valve stem.

IMPROVED NUT LOCK.

Frederick Swingly, Bucyrus, O.—An ingenious device for preventing the bolts from working loose in railroad joints, and in other places where they will be subjected to an intermittent or continuous jarring. It consists in the combination of two or more nuts with each other, in such a way that the backward movement of either will tend to move the other forward, causing them to mutually lock each other.

IMPROVED CAR COUPLING.

Hermann Wittmann, Manitowoc, Wis.—Accidents to brakemen while coupling cars are among the most common on railroads. The present invention aims to prevent these in great measure by improving the common draw-heads so that the link may be readily and conveniently guided to the opposite draw-head by the brakeman without danger of injury to the hand.

IMPROVED MACHINE FOR FORMING SHEET METAL TUBES.

Abner C. Goodell, Salem, Mass., assignor to Mortimer M. Camp and John E. Searles, Jr., New Haven, Conn.—This consists of an endless belt of suitable strength, that is revolved by a driving roller mounted in a sliding carriage, and applied to a detachable tube-forming mandrel by top and bottom stretching rolls.

IMPROVED PRESS FOR TOBACCO AND OTHER ARTICLES.

William H. Malone, Farmington, Ky.—This is a strong yet simple and inexpensive press, constructed substantially as follows: A lever is pivoted in one of the upright ends of the frame, and moves in a slot in the opposite end of the frame. The said slot has ratchet racks, which are engaged by pawls attached to the end of the lever.

IMPROVED BOILER.

Robert Excell, Chicago, Ill.—This is a tubular saddle boiler for heating greenhouses and for other purposes. It consists of a semicircular boiler with longitudinal flues arranged therein, in connection with a lateral fire-back at the bottom, and a lateral circulator at the top part of the boiler, between which the fire passes from the fireplace back to the flues.

IMPROVED SEWING MACHINE.

Lyman Robinson, Matteawan, N. Y.—The object here is to adapt a sewing machine for sewing on the binding of the brims of stiff hats, which, up to this time, have been sewed by hand. The needle and the presser-foot project outward from the head in which the bar works, to allow room for turning the crown of the hat over toward the head.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

IMPROVED VEHICLE SPRING.

William W. Sayers, Harrodsburgh, Ky.—The object of this invention is to provide for buggies, top carriages, or other light vehicles, a spring which shall be superior in point of elasticity, lightness, strength, and durability, and also adapted to prevent rocking motion of the body of the vehicle.

IMPROVED COMBINED POLE AND SHAFT.

William H. Hiteshew, Peru, Ind.—This is a contrivance of the shafts and their connecting devices whereby they may be readily shifted into suitable position for forming a pole for two horses. The shafts are pivoted to braces, so that they may be swung around to the center for use as a pole, or to the side.

IMPROVED METHOD OF VENTILATING BUILDINGS.

John F. Cameron, South Brooklyn, assignor to Elizabeth W. M. Cameron, Brooklyn, N. Y.—The impure air that rises to the top of the room passes through plates and spouts into a space between true and false ceilings, and thence into the cavities of the cornices and out through the pipes, the spouts preventing its return into the room.

devices are embodied which may be recommended to the notice of architects and sanitary engineers.

IMPROVED VENTILATOR.

John Sandall, Jr., St. John, N. B.—This is a simple ventilator for railway cars which works efficiently without regard to the direction in which the car may be moving. It consists, essentially, of a case projecting laterally from the side of the car, with an opening on two sides, into a passage which curves from the side to the outer end.

IMPROVED PROCESS FOR MAKING WOODEN SCOOPS.

Robert Richardi, Belleville, Ill.—An ingenious mode of turning scoops out of a single piece of wood. The block is first turned in the form of a goblet and then hollowed out at the scoop part. The inclined handle is cut and turned from the smaller rear portion, and finally the edges of the scoop are finished off.

NEW HOUSEHOLD INVENTIONS.

IMPROVED EASY CHAIR.

Henry Parker, Osawatomie, Kan., assignor to himself, Ammi A. Brown, and Frank A. Lauter, of same place.—This improvement consists in pivoting the back of the chair to a supporting frame, and pivoting the back, bottom, and foot pieces together, so that the back and foot pieces may be placed at any angle between a horizontal and vertical position.

IMPROVED LAMP EXTINGUISHER.

Leonard H. Pilger, Philadelphia, Pa.—This consists of a fulcrumed lever and slide rod at the under side of the burner. The lever extends below the collar of the bowl, to form contact with the same on detaching the collar, and to raise thereby the slide rod and a weighted extinguisher tube sliding on wick tube.

IMPROVED WEATHER STRIP.

David O. Hink, Maryville, Mo.—This is a new weather strip for outside doors that adjusts itself in automatic manner on the sill, so as to give protection against the entrance of moisture in stormy weather. A drop with a raised round knuckle is attached to a bed piece, and applied at suitable distance from the bottom edge of the door.

IMPROVED GAS LIGHTER.

Eddy T. Thomas, Boston, Mass.—This is an exceedingly ingenious device which automatically turns on, ignites, and extinguishes the gas at any desired hours. It consists of a clockwork train arranged in connection with a dial, the latter spaced off for 24 hours. By this dial the mechanism may be adjusted in accordance with the hours when it is desired to light and extinguish the gas.

IMPROVED WASHING MACHINE.

Joseph O. Beauperland, Fall River, Mass.—The novel feature in this device is a metallic cylinder, having longitudinal corrugations, in the internal concavities of which octagonal rollers are sustained, being journaled in the cylinder heads. Clothes and a quantity of hot or cold water are introduced through the doors in the covering and in the cylinder, and secured therein by closing and fastening the doors.

IMPROVED WEATHER STRIP.

Jesse Chandler, Warsaw, Ill.—A timely invention intended as a means for excluding cold and rain from windows and doors. It consists of a strip of metal or wood, which is movably attached to the door by the staples, and is of such length as to fit loosely between the jambs of the door.

NEW AGRICULTURAL INVENTIONS.

IMPROVED CHURN DASHER.

Chapman J. Syme, Petersburg, Va.—The invention relates to certain improvements in churn dashers, designed to churn the butter more rapidly by producing a larger degree of agitation in the cream. It consists in the particular construction and arrangement of a conical or funnel-shaped dasher, having a socket to receive the handle and provided with a perforated plate near its apex upon the outside, and a second perforated plate attached to a rod upon the inside.

IMPROVED CORN SHELLER.

Zadok T. Blackwell, Carrington, Mo.—A useful invention for farmers, by which the corn is rapidly separated from the cob and the cob expelled. It consists of a toothed revolving cylinder of slightly tapering shape, to which the ears of corn are fed from a hopper by a reciprocating slide with step-shaped surface. The ears drop on spring acted pressing pieces, that carry the same along the clearing teeth, and, finally, by means of a roller of the spring piece, through an exit aperture of the sheller frame, to the outside.

IMPROVED PLOW.

Samuel Huber, Danville, Pa.—In order to fasten the share or point of the plow without bolts, this inventor attaches the share to the plow by means of a projecting finger or dowel that fits into a corresponding aperture in the mold board, and locks the share by means of a dovetail in the beam and land side. The advantages of this method are that, as no bolts are required, the surface of the share may be smooth and entire.

IMPROVED CULTIVATOR.

Philip Studer, Mechanicsville, Iowa.—This is an improved machine for cultivating corn and other crops planted in hills and drills. It is so constructed that the plows may be readily adjusted toward or from the plants, and raised from the ground for passing from place to place. The new features relate mainly to improved construction of frame and braces.