

PATENTED INVENTIONS.

Agricultural Implements.

SICKLE-GUIDE.—JAMES T. LIGHTNER, Redwood, Cal. The body portion of the sickle has a laterally projected tongue formed with a cavity on its under face to receive an anti-friction roller, held in place by a keeper. A bolt is mounted in the body of the guide and is formed on its lower end with a cone, situated in a cavity in the under side of the body. Located on the bolt and within the cavity of the body is an anti-friction cup-wheel which engages bearing-balls. The construction provides an admirable anti-friction guide for the finger-bars of harvesting-machines. The sickle is held true in every direction without materially increasing the friction.

TRIP FOR HAY-FORKS.—JOHN PATTEN, Sr., Manti, Utah. In some hay-forks the position of the trip is such that only a certain amount of pressure can be exerted when the fork is closed. Therefore it frequently happens that the center of the load drops out before the trip is sprung. Mr. Patten has devised a fork by which this difficulty is overcome.

POWER DEVICE.—RODNEY C. COBLE, Marion, Kan. This power device is particularly adapted for use in connection with hay-stacking machines, the purpose of the invention being to provide a portable device having means for ready attachment to the body of a hoisting-machine and connection with the hoist of such machines. The feature of the present invention relates to the manner in which a fork, for example, is raised and lowered. Such a construction of elevating mechanism is provided that a fork may be made to drop without backing the animal employed to operate the power mechanism.

Engineering Improvements.

ROTARY FURNACE.—CHARLES GROLL, Roubaix, Département du Nord, France. A certain number of pieces are so combined that their expansion does not modify the contour of that portion of the periphery of the grate which forms the joint at the contact, or nearly at the contact, of a ring fixed to the walls of the hearth. The expansion of all the parts, whether fixed or moving, forming the joint between the grate and ring is much reduced and equalized by the action of a current of air which is circulated around the periphery of the grate. The pivot of the grate is mounted on a cross-piece fixed at one end to the ring, and capable of longitudinal movement at the other end. The play left between the fixed and movable parts of the furnace is exceedingly small, so that the fragments of coal cannot enter between the parts.

VACUUM-PUMP.—CHARLES E. LEGGETT, Joplin, Mo. This pump is actuated by the pressure of steam against water to expel the water from the pump cylinder or reservoir, the steam being then condensed to form a vacuum, or partial vacuum, into which water flows to fill the cylinder. The apparatus is constructed with special reference to its use in mines, where it is necessary to use a pump capable of handling much water in a short time and of being economically slowed down when the water in the mine has been placed under control.

SUPERHEATING APPARATUS FOR FEED WATER OF MARINE BOILERS.—MASSIMO LEVI and GIACOMO RABONICICH, Venice, Italy. This invention provides in the smokebox of steam-boilers in general, but in marine-boilers in particular, economizing arrangements of tubes through which the feed-water is compelled to pass before being fed into the boiler, for the purpose of causing it to absorb heat from the gases of combustion in the smokebox. Thus the expense for fuel may be considerably diminished; for, hitherto, much energy has been dissipated with the hot gases into the atmosphere.

Gas Apparatus.

ACETYLENE GAS GENERATOR.—THEODORE G. AMES, 1200 South Walter street, Albuquerque, New Mexico. The invention provides a simple and practical machine for generating acetylene gas. The machine may be cheaply and strongly constructed with couplings, holders, and fittings already on the market. These parts, when properly adjusted, will act automatically until the charge of calcium carbide is exhausted.

APPARATUS FOR CARBONATING LIQUIDS.—GARRET D. RHINEHART, Newark, N. J. Mr. Rhinehart has devised a simple and effective means for producing a quick and thorough mingling of gas and liquid in a soda fountain. The apparatus is so constructed that the gas enters the fountain at its bottom portion. A water supply and water overflow are provided at the upper portion of the fountain. According to the invention, two fountains can be so coupled together that both may be simultaneously or independently supplied with gas and water, so that the overflow of one or both fountains can be brought into operation as desired.

Mechanical Devices.

LOCK.—CHARLES M. BURNS and FREDERICK T. MERCER, Philadelphia, Pa. The lock can be operated either by a knob or by a key, or by both. When desired, an extra key-operated latch can be employed to prevent the knobs

from turning; the door, however, may be readily opened by means of the key. The bolt from the keeper section of the lock is automatically made to enter the body of the lock when the door is closed. A spring latch or bolt is not required, whereby the face-plate of the body of the lock and the surface of the door receiving that plate will not be marred by openings or projections.

ADDING-MACHINE.—JONATHAN T. DAVIS, Greenfield, Mo. This is an ingenious key-operated machine for mechanically adding amounts of any size. The construction is such that the machine can be sold for a comparatively low price and operated with ease. Columns of figures can be quickly added without mental exertion and with no error, if directions are followed.

TENSION DEVICE.—WILLIAM GERHARDT, Hazleton, Pa. The purpose of this invention is to provide a tension device adapted particularly for controlling the wires leading current to electrically-operated cloth-cutting machines, which tension device permits entire freedom of movement of the machine without danger of entangling the wires. The slack of the wires is taken up by a weight which is so combined with sheaves that the wires can be drawn out as the machine is moved away from the tension device.

CARTRIDGE LOADER AND RELOADER.—WHEELER W. MOORE, Rushville, Ill. The device removes the spent caps from cartridges and applies fresh caps, trims the edges of the cartridges and crimps them after they have been loaded. The cartridge tool has a body with a transverse passage. A revoluble crimping-cap is in alignment with the passage. With this crimping-cap the cartridge is pressed into engagement. A movable cartridge-holder employed in connection with the crimping-cap is projected through the passage mentioned. A knife is arranged adjacent to the holder so as to engage the cartridge and trim it.

TRANSMITTING-GEAR FOR WINDMILLS.—JESSE H. ALLISON, San Antonio, Texas. The windwheel-shaft is mounted in brackets and is provided with a pinion. An elongated internal rack is held in mesh with the pinion. Downwardly-projecting rods secured to a ring mounted in a circular bearing on the tower carry a bearing at their lower ends, through which the shank of the rack loosely passes. By reason of this construction a long stroke is imparted to the pump-rod or other device.

Electrical Apparatus.

CLOTH-CUTTING MACHINE.—WILLIAM GERHARDT, Hazleton, Pa. The machine can be freely moved over the cutting-table to cut the cloth without necessitating the operator's using one hand to press the cloth down and feed it in position, since this frequently causes the operator to be seriously cut by the machine. On a framing secured to the base of the machine a motor is carried. Below the motor two stub-shafts are mounted having transverse openings in their ends. Each stub-shaft carries a circular knife provided with a bevel-gear. A vertically-disposed rotary shaft, geared with the motor, extends through the openings in the ends of the stub-shafts. These openings form bearings for the vertical shaft. The bevel-gears on the knives mesh with bevel-gears on the vertical shaft.

Miscellaneous Inventions.

UMBRELLA-NOTCH.—WILLIAM DAVISON, 1 Queens Down Road, Clapton, London, N. E., England. The invention consists of a plain, perforated flange (stamped out in one with a cylindrical collar or tubular portion), in combination with U-shaped wire staples, which are fixed in the holes in the flange, the staples before being so fixed being threaded through the usual pivotal holes in the ends of the ribs or stretchers. Each rib or stretcher will, therefore, swing upon the bow portion of the corresponding staple. The staples are clenched in the flange by bending their points over at right angles or twisting them at the side of the flange opposite to that from which they project.

STOVE.—ERNEST C. COLE, 3215 Western Avenue, Chicago, Ill. In stoves which burn soft coal a large mass of fuel is put into the combustion-chamber, with the result that a large volume of gas is set free which cannot be controlled without overheating the stove. To avoid this difficulty Mr. Cole forms the combustion-chamber with a series of openings at the bottom, communicating with a surrounding chamber, whereby the products of combustion find exit only through these openings. Through the burning fuel, which is amply supplied with oxygen by means of a blast draft above the openings, and by means also of a grate below the openings, the flues will be prevented from filling with soot.

DENTAL BRIDGEWORK.—AUGUST P. JOHNSON, Ada, Minn. All-porcelain post-crowns have metallic posts for attachment to the natural-tooth roots. These posts are provided with lateral projections or arms which pass through the body of the crown and project on the side, where the ends are enlarged to form a base for the attachment of the improved dummy-crowns constituting the bridge proper. A strong bridge is thus produced from all-porcelain post crowns and all-porcelain dummy crowns.

SEAL FOR MILK-BOTTLES.—HENRY O. ROBINSON, 103 East Brooks Street, East Bos-

ton, Mass. As seals for milk-bottles, sheet-metal disks have been employed, provided with a central fold. Pasteboard disks have also been used, provided with a hinge. Both of these seals are objectionable for various reasons. In this invention a regularly oval pasteboard-plate is provided with a single, central crease in the under side and two crimps in the upper side, which are parallel to and equidistant from the central one. By reason of this novel construction the plate is enabled to fold in the manner required.

POLE OR SHAFT COUPLING.—ROBERT O NEVILLE, Elkhart, Ind. Mr. Neville has devised a simple anti-rattling coupling which holds the pole-iron or thill-irons connected with the draw-shackles, while the pole or thills are in use, or when they have been placed in an upper or lower position for the storage of the vehicle, or when the animals are unharnessed. The device is so constructed that the thill iron or pole iron may be quickly disconnected from the draw-shackles. The coupling is manufactured by the Elkhart Carriage Specialty Company and Indiana Buggy Company, of Elkhart, Ind.

ACETYLENE-GAS GENERATOR.—FRANKLIN E. LAYTON, Corning, N. Y. The apparatus comprises a gas-holder and a generator which employs a feeding apparatus by which the carbide is discharged into a surplus of water in the generator in small quantities. As the gas-holder rises to its maximum height, the valve through which the carbide must pass is automatically closed to stop the generation of gas; as the gas-holder falls, the valve is opened. The refuse can be readily removed from the generator without cutting off the supply of gas; and the carbide-holders can be refilled without interfering with the operation of the machine.

GARMENT-FASTENER.—MOSES W. WINSTON, Manhattan, New York city. The fastener is of the ball and socket type and consists of a button member projecting from one section and extended in the direction of the other section and inclosing the point of junction of these sections.

SAFETY-ADJUSTER FOR PRINTING FILMS.—BENJAMIN DAY, West Hoboken, N. J. This invention relates to adjustable holders for frames for printing films used in lithography or similar arts. By means of the construction provided, the operator is enabled accurately to adjust and hold the frame-film; to adjust, remove and readjust the film after inking or re-inking, with the certainty of obtaining accurate shading; and to shift the frame minutely and accurately in two directions, thereby throwing subsequent prints slightly out of register with the first print, so as positively to cause the subsequent prints to overlap, continue, or thicken the original print to produce darker tones of the original tint. Thus, the shading can be accurately varied.

CALCULATOR.—FREDERICK D. FERGUSSON, Paeroa, Auckland, New Zealand. The object of the invention is to provide a new and improved calculator which is easily manipulated and which is more especially designed for calculating timber, earth quantities, interest, etc. The invention consists principally of carriers or blocks movable in parallel guideways, a connection between the two blocks, and a scale between the guideways, on which the connection is read.

CAN-HOLDING ATTACHMENT FOR LADDERS.—HARVEY KEPLER, Dawson, N. D. The attachment is intended to hold paint-cans, and consists of a plate on one end of which is a guide-block for engaging the channel formed in one of the side rails of a ladder. A spring-pressed jaw on the lower portion of the plate engages any of the teeth in the channel. An arm, extended from the plate, has a hook portion to engage in the channel, formed longitudinally in the inner side of the side-rail of the ladder. With the plate, a can-holding platform is removably connected. The attachment can be adjusted to hold the can level at any angle, either while the side of a building or a roof is being painted.

WINDOW OR DOOR.—CHARLES E. REYNOLDS, Bronx, New York city. In this window or door, a joint and locking strip is adapted to extend simultaneously into adjacent grooves and is arranged to pass wholly into one of the grooves. The strip has a number of inclines. An operating-plate is mounted to slide lengthwise of the joint strip and has a number of inclines engaging the corresponding inclines on the strip. The window sash or door can be readily manipulated in the usual manner or disconnected from the adjacent part for cleaning. A perfect joint is produced between the parts to prevent draft and exclude dust.

SHINGLING-BRACKET.—WARREN L. DUDLEY, Watertown, Minn. This shingling-bracket comprises a base adapted to extend transversely under adjacent shingles. At or near the middle of the base an upright rises. A key moves transversely in a slot in the upright to bear on the top of adjacent shingles and clamp the bracket in position. The upright forms a rest for a part of the staging. This shingling-bracket can be readily placed on a shingle roof to support a stud or other part of the bracing.

HEATER.—HERMAN SCHWICKART, Brooklyn, New York city. The heater has a perforate shell in which spaced deflectors are contained, one above the other, and formed to produce a central draft space and inwardly and upwardly inclined air passages. These pas-

sages begin at the perforate shell and lead to the central draft space at a point above the base end of the next deflector above. A heating and free circulation of air is established, so that it is possible to heat a large quantity of air with a small amount of fuel and at the same time cause a proper circulation of the air in the room.

SAW-HANDLE.—CHARLES W. STITES, Manhattan, New York city. The saw-handle is so secured upon the saw-blade that it can be quickly detached without the use of a tool, and that it can be attached by the latching movement of a portion of the handle. The handle can be applied to any number of saw-blades, which may be carried so that they take up but little space.

CIPHER-CODE SYSTEM.—CHARLES P. HALL, Manhattan, New York city. This new cipher-code system enables one to send long messages with the use of very few words or numerals. The system employs a book having an index-page with a column containing subject words or sentences; a column containing cipher numerals for the subject words of sentences; and a key for the message, arranged for use in connection with the numerical value of the message, to change the numerical value. Besides permitting the receiver readily to decipher the message sent, secrecy can be preserved.

ARTIFICIAL FLOWER MADE OF FUR.—CARL HARTMANN, Manhattan, New York city. Mr. Hartmann has devised an economic and practical means whereby artificial flowers can be made from furs, the flowers being so formed that the nap of the fur will naturally run or lie in the direction of the outer edges of the petals or flowers. The parts of the flowers are so assembled that their centers are independent of the body of the flowers, whereby these centers may be fixed in position simply and quickly.

WELL-PACKER.—FRED J. MOSER, Kane, Pa. Heretofore, owing to the great pressure in oil-wells and the unevenness of the walls, the packing of the wells has been accomplished with difficulty. According to this invention, an annular packing-tube of rubber is employed, which tube is formed with an annular chamber. When this chamber is filled with a fluid, pressure on the end of the tube will be evenly distributed around all the sides of the tube. By these means the tube is caused to expand against the walls of the well, and to adapt itself to inequalities and effectively sealing the bore.

Designs.

BLANK FOR PAPER BOXES.—JOSEPH T. CRAW, Jersey City, N. J. Mr. Craw has devised a one-piece blank from which boxes can be easily made to meet the various requirements of manufacturers.

BELT.—LOUIS SANDERS, Brooklyn, New York city. To the many belts which Mr. Sanders has already designed may be added the one which forms the subject of the present patent. In this new belt two members are employed, which interlace and lose themselves in the longitudinal edges of the belt.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

NEW BOOKS, ETC.

THE METALLURGY OF GOLD. A Practical Treatise of the Metallurgical Treatment of Gold Bearing Ores, Including Assaying, Melting and Refining of Gold. By M. Eisler. London: Crosby, Lockwood & Son. New York: D. Van Nostrand Company. 1900. 8vo. Pp. 638. Price \$1.50.

The fifth edition of a standard treatise upon the metallurgy of gold is now before us. It is illustrated with 300 illustrations and numerous folding plates. The gratifying demand for successive editions of this work, together with the striking and continued advance made during the last half dozen years in the way of appliances for gold mining has led to the great expansion of the work before us. The use of the cyanide process alone would make a new edition imperative. A careful examination of the book shows that every phase of the subject is treated with great care, the relative values of the various processes being carefully considered. It is probably the best book on the subject for the American and English reader.

THE ATTAINMENT OF WOMANLY BEAUTY IN FORM AND FEATURE. Edited by Albert Turner. New York: The Health Culture Company. 1900. 12mo. Pp. 256.

The book consists of a number of chapters written by the various authorities, and the whole forms a compilation of considerable interest to women.

GLUE AND GLUE TESTING. By Samuel Rideal. London: Scott, Greenwood & Company. New York: D. Van Nostrand Company. 1900. 8vo. Pp. 140. Price \$1.

The author has rendered a substantial service to technical literature in the preparation of the present volume. He has gained very valuable experience by the examination of commercial samples. There are too few books