

Milk Testing in Holland.

At the last meeting of the American Association for the Advancement of Science, held in Buffalo, Professor Von Baumhover, delegate to the Centennial for Holland, gave an account of the milk adulteration question in the city of Amsterdam, where the lactometer is not relied upon; but a simple and quick method of chemical analysis, introduced by the Professor, is employed, and has been adopted by the city authorities. The method of Dr. Von Baumhover consists in an improvement on that first proposed by Brunner. The trouble commonly found in evaporating milk, in order to find the amount of solid ingredients in it, consists chiefly in the continual formation of a skin on its surface, which swells up from the vapors beneath, and the milk boils over. This is avoided by mixing a sample of the milk with pure, clean sand, placing the mixture on filtering paper, and heating the whole on a slab of porous stone. All that evaporates is water, and the quantity is shown by the loss in weight.

In good cows' milk, the solid ingredients amount on the average to 13 per cent; but as they may vary, 11½ per cent has been allowed as a minimum, corresponding to a loss by evaporation of water of 88½ per cent. If the loss in weight is more, the milk may be set down as watered or skimmed, or both, no matter what the lactometer test indicates. In order to find the amount of butter, the filtering paper and its contents are placed in a funnel, and ether poured on and allowed to percolate through; this removes all the butter, and the amount of the latter is found by allowing the ether to evaporate. As the amount of butter in cows' milk varies between 3¼ and 5 per cent, 3½ per cent may be adopted as a minimum; and milk having less butter than 3½ per cent, the inventor claims, may be set down as skimmed or watered, or both.

As the determination of the amount of water and butter in milk is simply sufficient to determine its value in a commercial and sanitary point of view, the tests for casein and milk sugar may be dispensed with. In the above explanation, we have only given the main points of the analyses without entering into the minute practical details, which it is necessary to understand in order to obtain fully reliable results. Professor Von Baumhover stated that the milk inspectors, after being properly instructed, can in this simple way make 20 or more analyses simultaneously and in a very short time. In Holland, it is customary to test only such samples as arouse suspicion by their transparent, watery appearance; and many kinds of milk thus examined are proved to be largely adulterated, notwithstanding that they stand the lactometer test.

NEW BOOKS AND PUBLICATIONS.

NOTES ON ASSAYING AND ASSAY SCHEMES. By P. de P. Ricketts, E. M., Ph. D., Instructor in the School of Mines, Columbia College, New York city. Price in cloth \$2.50, in paper \$2.00. New York city: Published by the Author, School of Mines, 50th street and Fourth avenue.

This book is especially designed to meet the wants of the practical miner and assayer, as well as to lay down a system for the guidance of the student and the professional analyst. The rules and directions are the result of long experience, many of them having been tested in the laboratory of Columbia College. Several processes and details, originated in the mines of the Great West, have been embodied in the work, and complete lists of apparatus and reagents are added.

THE ELECTRIC BATH, ITS MEDICAL USES, EFFECTS, AND APPLICANCES. By George M. Schweig, M. D., etc. Price \$1.00. New York city: G. P. Putnam's Sons, 182 Fifth avenue.

The writer of this little work treats the subject and his readers with great candor, admitting that his "failures" in treating patients "have been illustrative of the fact that the electric bath is no more a panacea for all ills than any other remedial agent. Applicable as it is to a great variety of pathological conditions, it meets with many where it is destined to have negative or at best imperfect results." He claims, however, that the book is the result of his own experience, and that it owes nothing to the labors of other practitioners. We commend it to sufferers who desire to try such remedies.

That very useful manual of reference, the *Public Ledger Almanac*, George W. Childs, publisher, Philadelphia, has appeared for the year 1877, and is presented gratis to every subscriber to the Philadelphia *Public Ledger*. It contains a carefully prepared calendar, a valuable article on the progress of Philadelphia during the past century, another on the Centennial Exposition, a chronology of notable events of the past year, and lists of the officials of the National and State governments, Supreme Court, Diplomatic Corps, etc. The page of proverbs contains a world of homey wisdom and good counsel epigrammatically expressed.

Recent American and Foreign Patents.**NEW MECHANICAL AND ENGINEERING INVENTIONS.****IMPROVED CARTRIDGE CRIMPER.**

Mordecai B. Massey, Huntington, Pa.—This little instrument is intended to answer a want which has not, the inventor says, been heretofore supplied satisfactorily. The device consists of a pair of pinchers with jaws formed to fit the shell, and a cylindrical tongue between them, over which tongue the shell is placed for crimping. This tongue has a slight depression in it, into which the jaws compress the shell; and the end of this tongue, on withdrawing the shell, serves as a gauge to show when it is sufficiently crimped. A shell which has been used with a heavy charge of powder is so much expanded that it will not hold the bullet, when reloaded, unless the mouth of the shell be somewhat reduced in size; and the shell must be reduced or crimped in such manner that it will hold the bullet with its center line from base to point exactly coinciding with the center line of the bore of the barrel. The bullet then starts straight and true. The inventor above named claims that his crimper answers the want exactly.

IMPROVED SAW SET.

George S. Grier, Milford, Del.—The object of this invention is to furnish a device for setting the teeth of saws of different sizes, which is capable of being so adjusted as to give much or little set to them, as may be desired. It consists of two hinged jaws provided with die plates having teeth to engage alternately with the teeth of the saw, between the lower portion of which jaws, beneath the hinge, a double cam is placed, for closing or opening them, the said cam being operated by a lever.

IMPROVED MEANS OF LESSENING DRAUGHT OF VESSELS.

Edward Ellison, San Francisco, Cal.—This invention consists in certain means for lessening the draught of vessels in moving through the water, and it consists in either constructing the vessel with inclined surfaces upon its bottom, or in applying to the bottom or the sides of it inclined plates which will tend to lift the vessel in the water as it moves through it, thereby lessening the draught.

IMPROVED COMBINATION LOCK.

George Winter, Jacksonville, Va.—The present invention is an improvement upon that for which the same party received letters patent No. 181,756, dated August 29, 1876. The object of the invention is to produce a cheaper, more simple, compact, and secure lock.

IMPROVED VALVE GEAR.

Wilberforce Johnson, Camden, N. J.—The object of this invention is to provide a simple, effective, and valuable valve gear, which shall be regulated at will alike for the admission of steam to the cylinders, the stopping and reversing of the engine, and which shall have separate devices for controlling the "lead" for greater or less speed. To this end the devices are located upon a drive shaft, which may be either a part of the running mechanism of a stationary or marine engine, or the axle of the car wheels when applied to a locomotive. These devices consist in the main of a central loose sleeve encompassing the shaft and connected by diametrical pivots to a transverse encompassing collar. This collar is geared to the shaft and made to revolve through the devices for controlling the "lead," and is oscillated by a pitman arranged longitudinally with a drive shaft and geared with it rigidly at one end, and to a sliding collar at the other. This oscillation is imparted to a rim which slides upon the periphery of the collar and imparts the proper motion to the valves through connecting rods.

IMPROVED RAILWAY CAR.

Samuel R. Wallace and Oliver V. Wallace, San Francisco, Cal.—The object of this invention is to obviate the sudden jolt and jar incident to railway cars in stopping and starting. In attaining the end of the invention the body of the car is located upon swinging supports which have spring seated bearings in the car frame, whereby the longitudinal jolt of the car is converted into a swinging upward movement of the body of the car and its contents, instead of having the effect of the impact and start imparted directly to the said car and contents.

IMPROVED FEATHERING PADDLE WHEEL.

Francis J. Leisen, Woodbridge, N. J.—This consists of a contrivance of stationary cams in a hollow hub, in which the bucket arms are fitted in boxes so as to revolve a quarter of a revolution forward and backward to present the buckets sidewise or edgewise. The essential feature of the invention is the contrivance of the hub.

IMPROVED ELEVATOR.

Stillman E. Chubbuck, Boston, Mass.—The invention relates—First, to the automatic mechanism employed for throwing the hoisting apparatus proper out of gear or arresting its operation when the ascending platform is overweighted, or when any object or material placed thereon comes in contact with the floors or timbers of a hatchway, so that the hoisting rope will not continue to be wound up, and so that no injury can result to persons on the elevator or the building in which it is located. Second, to the automatic mechanism employed for throwing the hoisting apparatus proper out of gear or arresting its operation whenever the said hoisting rope parts, or the platform is arrested in its descent, thereby preventing the rope continuing to unwind. Third, to the belt shifting mechanism proper and the arrangement of the driving worm shaft with two drums for winding and unwinding the hoisting rope.

IMPROVED FENCE.

Frederick Suiter, De Witt, Iowa.—Instead of wooden fences, which are costly and not durable, this inventor suggests an iron fence of very simple construction, which is at the same time strong and capable of being cheaply erected. A semicircular post that tapers upward and downward from a base plate at the point where it emerges from the ground. It is strengthened by a center rib or ridge. The fence wires are connected by staples, slots, and fastenings, and also intermediately between the posts to a stub post. The posts of the end panels are stiffened by a tubular diagonal brace, that is fitted by collars to the posts.

IMPROVED SNOW PLOW.

William Cooke, Morrisville, Vt., assignor to himself and Henry A. Buzzell, of same place.—This timely invention may be commended to the notice of railway companies, inasmuch as it aims to substitute for the large heavy snow plows now in use a much lighter and more manageable apparatus which will effectually keep tracks clear. It consists of a car with snow plows, hung in an adjustable manner to both ends, and operated by a suitable lever device. The plows are fitted with tips extending below the top of the rail. The track is cleared of ice by means of spring-acted concave cutters or knives, that are applied to a suitable frame, and raised or lowered by a lever. The plows swing readily on the eyebolts, and are so adjusted that when they come in contact with any frozen dirt or ice they will lift and run over it without breaking.

NEW AGRICULTURAL INVENTIONS.**IMPROVED DITCHING MACHINE.**

Daniel Hess, Greenville, Miss.—This invention is an improvement in the class of ditchers, having an endless belt or apron by which the earth is elevated and deposited upon a cross-belt or carrier. The improvement relates particularly to the construction and arrangement of devices for causing the machine to advance, to the form of the cutters, and also the mode of attaching them to the elevator belt or apron.

IMPROVED CHURN.

James S. Smith, Beebe Station, Ark.—This invention is an improvement in the class of churns having a vertical rotating dasher. The improvement relates first to the construction and arrangement of parts whereby the dasher shaft and its operating gear are adapted for convenient removal from their bearings. The invention also relates to the construction of the top or cover of the tub or churn-body, in two like-sized parts, which are connected by a hinge and elastic strap, to adapt the cover for convenient application to and removal from the tub.

NEW MISCELLANEOUS INVENTIONS.**IMPROVED ARTIFICIAL LEECH.**

Floyd F. McDonald, Blacksburg, Va.—This invention relates to that class of medical instruments intended to subserve the purpose of the natural leech and extract blood from some portion of the human body. It consists in an artificial leech produced by combining an elastic bulb open at the upper end, a T tube open at its three ends, a small tube open at one end only, and a suitably constructed knife. The bulb is first compressed and the open end held firmly against the body; the bulb is then allowed to expand and form a vacuum which draws the skin upward; the knife then makes a puncture in the skin, and the blood flows until the requisite quantity has been drawn.

IMPROVED MEDICAL COMPOUND.

Miss Judie D. Lipscomb, Andrews, Va.—This compound, known as the "chill master," is a specific for fever and ague, consisting of an infusion of tulip tree bark (*Liriodendron*), willow bark (*salix*), flux root (*gentiana Catesbaei*), with cherry bark (*prunus Virginiana*), dogwood bark (*cornus Florida*), sassafras (*sassafras*), flowering almond (*prunus amygdalus*), sulphate of quinia, Fowler's solution of arsenic, and whiskey in the proportions specified; and it is said to be very efficacious for the purpose.

IMPROVED INDEXER.

John Suter, New York city.—This device is made of one piece of sheet metal, and consists mainly of a strip or plate designed to be inserted between the leaves of a book to indicate where an extract is to be made, or reading resumed, etc. The broad end of this strip or plate is bent in such manner as to form a clamp for holding slips containing memoranda, notes, etc., against the back of the book.

IMPROVED FIRE EXTINGUISHER FOR VESSELS, ETC.

Almon M. Granger, New Orleans, La.—This invention relates to certain improvements in chemical fire extinguishers, designed more particularly for harbor fire protection boats and sea-going vessels, but applicable also in most of its features to general use. The general principle of the improvement rests in the direct use of the dry gaseous carbonic acid in smothering volume, in contradistinction to the common use of a limited quantity of the same dissolved in water under pressure. The means for carrying out the invention consist generally in the combination of a set of capacious generators for containing bicarbonate of soda, a set of superposed acid vessels, a subjacent acid reservoir, and an air pump, or equivalent forcing apparatus for charging the acid vessels from the reservoir, the whole being combined, by means of communicating pipes controlled by valves or socks, so that the acid may be forced from the reservoir in the hold of the boat only when the effective power of the gas is required, and whereby accidental admixture of the chemicals is from the motion of the vessels, or from other causes, completely avoided. This apparatus embodies many novel details of construction, and from practical experiments upon a large scale conducted on board the New Orleans Harbor Protection Boat, promises to supply a want which the loss of life and property on the sea has made long felt.

IMPROVED PAPER BAG.

James H. Percy, Cumberland, Md.—This is a paper bag provided with strings permanently attached to its sides in such positions as to come together when the mouth of the bag is turned or folded down.

IMPROVED LETTER BOX.

Joseph Katz, New York city.—This letter box indicates automatically the time at which the mail is to be collected; and the invention consists of a swinging door or drop, which must be opened to collect the contents of the box that is hinged, and provided with teeth at the free end, that engage similar teeth of a roller that operates, by a pawl and ratchet device, the time-indicating disk.

IMPROVED PANTALOONS CONFORMATOR.

John G. W. Feldmann, New York city.—Pantaloons cutting is by some tailors adopted as a specialty—and they charge, as a rule, large prices for their neatly fitting garments. Mr. Feldmann here presents an invention which will enable any one, he says, to cut trousers to a perfect fit, the apparatus being analogous to the conformators used by hatters in measuring the head. The device consists of a frame of the size and general shape of the leg, with a number of spring-acted adjustable set pieces that bear on the leg, and mark, by pins passing through recesses of the main frame, the exact shape of the leg on a pattern paper applied to a detachable marking frame. The latter is supported by a foot part and forced against the marking pins, releasing a suitable spring mechanism. A center waist rule and tape line at the top part serve to take other measures.

IMPROVED UMBRELLA SUPPORT AND ROBE HOLDER.

William Rounds, Chester, Vt.—Knowing how difficult it is to hold up a lap robe or boot, an umbrella beside, and to manage the reins at the same time, this inventor proposes an ingenious device for relieving the driver of the care of the two articles first mentioned. To sustain both robe and umbrella, he attaches to the carriage seat a plate, which is provided with dovetail grooves for supporting a standard, to which a holding device is secured, in which an umbrella stock may be clamped and adjusted to any desired angle on a horizontal or vertical plane. The said standard is clamped in the grooves in the plate by an eccentric, and is bent into a U-shaped loop, the open end of which is inclined downward toward the front of the carriage for receiving the lap robe or boot, which is retained by a suitable clamping device.

IMPROVED BRICK KILN.

Holland B. Evans, St. Charles, Mo.—This inventor has devised a useful improvement in the construction of the brick kiln, patented, jointly, to himself and Ernest G. Kemper, November 9, 1875. A number of permanent corner and side flues are arranged to run from the bottom and arches to the top of the main part of the kiln, and then under the different compartments to the uppermost compartment, and out at the highest point of the same. A series of shorter flues at the top of the main part and compartments of the kiln are closed in suitable manner, as required to adjust the heat in the kiln. The permanent flues secure thus a constant supply of heat at the top part of the kiln while the short temporary flues, distributed over the top of the kiln and compartments, serve to regulate the heat and give complete control over the kiln during the process of burning the bricks.

NEW HOUSEHOLD INVENTIONS.**IMPROVED MEAT CHOPPER.**

Hugh P. Rankin, Allegheny, Pa.—This invention relates to certain improvements in that class of meat choppers in which a series of cutters are successively lifted by a shaft provided with cams, and allowed to chop the meat upon a rotating table from the tension of separate springs which force the cutters downwardly when the cams leave the lift bars carrying the cutters. The improvement consists principally in the means for regulating the downward stroke of the knives to prevent them from rapidly chopping up and wearing out the wooden table.

IMPROVED PORTABLE FIREPLACE.

Theodore C. Nativel, San Francisco, Cal.—This invention relates to a novel construction of portable fireplace designed to be used with an improved form of chimney stack which requires no earth foundation, for which letters patent were granted the same inventor, October 5, 1875. The portable fireplace is so constructed as to fit in the corner, or any other portion of the room, and is constructed preferably of fire clay with arrangements for ventilation, and for preventing the burning of the woodwork of the building.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.**IMPROVED COMBINED SLED AND TRUCK.**

Sylvanus F. Brooks, Cambridgeport, Mass.—This consists of a truck body having runners, with semi-circular recesses on one side, and wheels that extend into the recesses of the runners and above the body at the other side. Projecting side strips support a detachable frame on the body, whether the same is used on runners or wheels. The device may be used as a toy vehicle for the amusement of children, being quickly changed to a sled or truck, as desired.

IMPROVED MACHINE FOR SHAPING PLOW HANDLES.

Edmund A. Conner, Metropolis, Ill.—This is an apparatus for guiding plow handles and other articles while being shaped; and it consists of a frame attached to the side of a shaping machine, which is capable of being moved vertically by a suitable lever, and which is provided with pins, upon which moves a guide having cam slots of the form desired in the article to be shaped, the article being clamped to the guide, and moved up to the cutters by a lever connected with the guide.