ranged in tabular form, and are well adapted for the use of students, as an introduction to the voluminous literature on the subject. Much of the matter is new and original; and the author's explanatory notes give many details of manipulation, and point out the precautions to be observed by the operator. The book bears promise of much utility.

LIVER COMPLAINT, NERVOUS DYSPEPSIA, AND HEADACHE: Their Causes, Prevention, and Cure. By M. L. Holbrook, M.D., Editor of the "Herald of Health," etc. New York city: Wood and Holbrook, 13 and 15 Laight street.

The treatises on health and disease which have been published in great numbers of late years do not seem to have diminished the crowds of patients who flock to the doctors in search of remedies for dyspepsia, liver complaint, and other troubles, brought on, as Dr. Holbrook points out, mainly by gluttony, intemperance of all kinds, and laziness. This little book gives the only recommendation possible in such cases, namely, moderation in food and drink, care in the choice of food, exercise, and cleanliness. It is not much to the credit of the invalids and hypochondriacs of our day that these remedies have to be so frequently prescribed.

THE WOOL CARDER'S VADE MECUM, a Handbook of Woolen Industry. By W. C. Bramwell. Terre Haute, Ind.: Hebb and Wigley.

An excellent treatise on a little understood specialty. The tables and formulæ for calculating speeds, etc., are especially valuable.

A SONG OF AMERICA, AND MINOR LYRICS. By V. Voldo. New York city: Hanscom & Co.

The "Song of America" commences: "When Earth was but a fledgling, and her race first entertained the everlasting space," etc. The author does not explain where earth's race lived when earth's feathers began to grow, nor the nature of the entertainment to which everlasting space was invited: but he puzzles his readers with a wilderness of riddles of the same kind, and astonishes them with seventy pages of matter that defies the interpreter, and laughs him to scorn. Every line in the book has a sphinx-like impenetrability about it that would be exasperating if it were not perfectly easy to place the volume in the basket thereunto appointed.

MR. F. GUICHETEAU has recently patented a newspaper file of very convenient form. It consists of a paper box, made in the shape of a book and appropriately lettered on the back. Inside the box, where the backs of the papers are, are cross wires for filing the papers on, and a steel spring for holding them tightly in place. The files are made and sold by Mr. F. Clerget, 1,575 Broadway, Brooklyn, N. Y.

W. E. MARSHALL, artist, has made some fine steel plate portraits of the candidates, which are published by O. Marshall, 697 Broadway, New York.

Recent American and Foreign Patents.

NEW AGRICULTURAL INVENTIONS.

IMPROVED HAND CULTIVATOR.

James S. Lucas, Bowling Green, Ky.—This consists of a hand cultivator with V-shaped arms, having a suitable number of teeth and curved cutting knives at the front part. It is readily used between the rows of vegetables, and forms thus a convenient implement for field and garden use.

IMPROVED MOWING MACHINE.

Frank Pastorius, Quincy, Ill.—This is an improved device for giving motion to the sickle bar of reapers and mowers. To the journals of the gear wheels, which engage with the drive wheels, are rigidly attached two cams, set in opposite directions, so as to alternately push against the opposite sides of, and thus oscillate, a lever, which is connected with the sickle bar.

IMPROVED FEEDER FOR THRASHING MACHINES.

John Potterton Fison, Teversham, England.—This invention relates to a combined drum guard and feeder for thrashing machines. It is designed to prevent accidents by making it impossible for any person to fall upon or be drawn into the drum, and to act, also, as a feed regulator. Should any unusual weight come upon either the cylinder or the upper part of the feed board, the cylinder instantly descends upon the feed board, and the lower at the same time rises to meet the cylinder. The cylinder and feed board being thus brought together, the feed opening of the machine is entirely closed.

IMPROVED HARROW.

James M. Flower, Traverse City, Mich.—The harrow frame is formed of four sections, each section consisting of three bars, arranged in the form of the letter N, connected at one end by a cross bar, and hinged together in pairs.

IMPROVED STRAW CUTTER.

Hugh G. Fladger, Lilesville, N. C.—The balance driving wheel has an eccentric groove in one side, in which a roller works to operate the cutter lever, the roller being mounted at one side of the free end of the lever on a pin.

NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED CAR COUPLING.

John Slade, Bay City, Mich.—This invention relates particularly to the form of the shank of the hooks, and to the provision of beveled blocks, attached to the side of the hooks, whereby the latter are adapted to be uncoupled when raised to a slight angle.

IMPROVED COAL CHUTE.

Edmund R. Bulkley, Perth Amboy, N. J.—This consists in the combination, with an adjustable discharging chute section and the feeding bin of an adjustable and intermediate section having a sieve bottom for sifting out the fine coal as it passes from the bin, and for preventing a too violent fall of the coal into the hold of the vessel.

IMPROVED HAY AND COTTON PRESS.

Isaac N. Ward, Henryville, Tenn., and Hugh R. White, Lawrenceburg, Tenn.—This invention is an improvement in cotton presses of the modern type, in which the upper end of the box is left open for filling, and the follower is worked from beneath. The head and sides of the press box are made removable, and the ends travel with the follower, which is operated by pivoted levers. The said levers are connected by movable clamps or dogs, with vertical rods which are pivoted to the ends of the follower, and attached, at their upper ends, to the sliding or traveling ends of the press box; so that as the levers are vibrated, the clamps or dogs bite on said rods, thereby raising the follower and the ends of the press box and the rods simultaneously. The said ends are made in sections to facilitate the removal of the bale.

IMPROVED CAR COUPLING.

Alvin K. Mott, Atlantic, Iowa.—This consists of a drawhead, with sliding and spring-acted block, and a fork-shaped locking piece that slides in side grooves and top perforations of the drawhead, and couples the arrow-shaped head of the link. The forked lock piece is made wider at the lower parts of the legs to admit the forward motitn of the spring block and the seating of the lock piece on the forward projecting top flange of the same.

IMPROVED MANDREL OR CORE FOR CASTING.

James M. Rohrer, Shamokin, Pa., assignor to himself and William L. Follower, same place.—The flanges for holding the parts of the mandrel together are bored out tapering to fit the tapering ends of the shell, so as to be easily removed. The shell is cut longitudinally to receive a beveled key, which is cut beveling, so that it will give toward the center, as the shell contracts when the center plug is given from the shell to relieve the pressure caused by the shrinkage of the casting in cooling. This sectional mandrel is used in casting cylinders of any kind that require hard and smooth inner surfaces.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

IMPROVED WHIFFLETREE COUPLING.

Asa T. Martin, Jr., Waverly, Iowa.—This is an improved coupling for connecting whiffletrees with the double tree, and the double tree with the tongue, so constructed as to prevent them from tipping or turning over. It also causes the end that moves forward to rise, so that it will return to its place. The coupling bolt, which is rigidly attached to a washer, is bent at an angle at its point of intersection with said washer. The washer is made thicker upon one side than at the other, to counterbalance the angle of the bolt and give the whiffletree a firm seat.

IMPROVED SAWMILL DOG.

Alfred Mepham, Fayette, Ohio.—This invention consists of a dog, mounted on a block, which slides up and down on the standard, with a crank pinion and toothed bar for working it, and a ratchet lever for applying great force to press the dog into the log. There is also a secondary plank dog detachably connected to the block carrying the principal log dog, and contrived with a cranked screw nut for drawing the plank up to the standard, in addition to the contrivance for pressing the dogs down into the timber.

IMPROVED SASH BALANCE.

W. Woodward, Nashville, Tenn.—The object of this invention is to provide a simple and efficient sash balance, in which the cords carrying the suspended weight shall be concealed from sight and yet arranged so as to permit the raising or lowering of each sash to its entire length. To this end the invention consists in grooving the sash upon its edges and attaching the cord to the same at the bottom, then passing it between two pulleys, arranged about the middle of the window frame, and thence around a third pulley, located about the center of the window.

IMPROVED COMPOSITION PAINT FOR COATING ROOFS.

Thomas Dana and Zechariah B. Stuart, Manchester, N. H.—This compound may be used as a waterproof coating for any purpose. It is not affected by heat or cold, and is light and durable. It is composed of gutta percha, isinglass, chloroform, and rosin, japan and asphalt varnish.

IMPROVED LOCOMOTIVE WHEEL.

Wilson Weathersbee, Spring Garden, Ill.—This is a new method of gearing one or both of the driving wheels of a locomotive, so that they can turn independently of each other in going around curves, and thus prevent sliding, as when both wheels are keyed fast to the axle.

IMPROVED PUMP.

David N. Green, Rockbridge, Ohio.—The novel feature consists in detachable plugs held over lateral apertures in the pump stock by sliding keys, by which plugs the water in cold weather is allowed to run out.

IMPROVED HORSESHOE BLANK.

James N. Whitman, Pembroke, Me.—This consists of a rolled bar of iron or steel, having formed on one side thereof, in process of rolling, calks for the heel and toe and a nick at the end of each blank. Upon the reverse side is a clip for the toe, and nicks corresponding to those on the calk side.

IMPROVED SIGNAL ATTACHMENT FOR ELEVATORS.

Charles Hoffman, New York city.—This consists of an elevator or dumb waiter, arranged with a number of separate pulls and catches for each story, that come in contact with a signaling or alarm device of the corresponding story when raised to the proper hight.

IMPROVED SAW SWAGE.

Asher Willey, Rochester, Mo.—This consists of a recessed stock, provided with shaping dies of different curvatures, that are set into the recesses of the stock, and locked by an inclosing sleeve. The swage is applied to the tooth and driven by a mallet on the same, so that a cutting edge corresponding to the curvature of the shaping die is formed, and thereby a tooth of greater or less cutting power obtained.

IMPROVED SUGAR MILL.

James Mallon, Baton Rouge, La.—This invention consists of a sugar mill, arranged with a perforated steam pipe in front of the receiving rollers, and one or more perforated steam pipes in the cane knife for forcing small jets of steam up through the cane as it passes over the knife or turn plate.

IMPROVED CAR REPLACER.

Homer G. Brooks, Greenville, S. C.—This consists of a casting that rises gradually on an inclined plane from the broader lower part to the narrower higher end, at a level with the rail, being fitted thereto by bottom recesses and rail head binding wings. Guide grooves and flanges lead the car wheel to a key, socketed at suitable angle at the highest end of the replacer, to transfer then the wheel to the rail.

IMPROVED COTTON PRESS.

William H. Horn, San Augustine, Tex.—This relates to the press on which a patent was granted May 5, 1875, to William B. Hollowell; and it consists of a duplicate master wheel on the drum for working the follower: also an improved contrivance for connecting the pitman to the lever and to its pivot, whereby the machine is rendered more efficient, and may be made lighter for a given strength.

NEW HOUSEHOLD INVENTIONS.

IMPROVED APPLE CORER.

Isaac Rogers, Sheridan, Oregon.—This invention consists in combining with a fork, coring tube, and cutter, a cross piece having top pins, whereby the pared and sliced apple is automatically removed. The forward stroke of tube and blade cores and cuts the fruit, while the return stroke carries the core back and drops the divided fruit.

IMPROVED CARPET SWEEPER.

Samuel F. Leach, Chelsea, Mass.—This invention consists in carpet sweeper gear wheels made of leather, treated with a hardening and waterproofing substance or substances. Leather is better than wood or metal because it is entirely noiseless and will not tear the carpet, and it is also superior to rubber or rubber compound, as it will always preserve its round or true shape, which is not the case with rubber wheels.

IMPROVED SUSPENSION BED SPRING.

James W. Wright, Washington, D. C.—This invention relates to an improved construction of suspension bed spring; and it consists in detachable wire springs bent so as to form seats in which the ends of the slats are suspended, the said pieces of wire having their middle parts bent into coils, through which passes a rod, and their ends extended upwardly in the form of arms terminating in hooks. The seats for the slats project laterally from the said rod, which latter, passing through the coils, operates as a pivot for the same, while the upwardly extending hooks are detachably fastened to the end frames of the bedstead and sustained in a suspended position.

IMPROVED AUTOMATIC FAN.

Morris Ruben and Herman K. Bradshaw, Alexandria, Va.—The object of this invention is to provide a cheap and available motive power for driving fans, with a force sufficient to produce a current of air over a dining room table, bed, or sick couch, thereby accomplishing the double result of supplying a cool current of air, and driving away flies, mosquitos, and other troublesome insects. To this end the invention consists in an overshot wheel, arranged to be operated by a stream of falling sand or water, and combined with peculiar mechanism for operating the fan.

IMPROVED FRUIT JAR RACK.

Stokley D. Dilts, Lawrenceville, Ill.—This rack consists of bars and frames, the latter being provided with opening to allow the top to be secured at a greater or less elevation above the bottom to suit jars of different hights.

IMPROVED FURNITURE CASTER.

Benjamin E. Flanders, Brooklyn, N. Y.—This consists of a caster, the socket of which is provided with an interior concavo-convex glass shell, which extends from the upper point of greatest pressure, and bears on a revolving ball that is retained by an outer metallic casing. The friction between shell and ball being reduced to a minimum, the wear is decreased.

IMPROVED CARPET FASTENER.

John H. Campbell, New York city.—This consists in a carpet fastener made of sheet metal, and having key holes, which allow it to be placed over and slid under the heads of rivets. When the fastening nails are placed in position, and the carpet cut, sewn, and stretched, the edge of the same is carried by the flat knife under the clamping top part, and the knife then withdrawn. The toothed part of the fastener takes firmly hold of the edge of the carpet, and prevents its escape, whatever be the strain thereon.

IMPROVED REFRIGERATOR.

Mahlon Moon, Morrisville, Pa.—Between a preserving chamber and the ice chamber, a fibrous or absorbent material is placed to collect and carry off the moisture condensed from the air. This furnishes a simple device for preventing injury to fruit, etc., by dampness.

NEW MISCELLANEOUS INVENTIONS.

IMPROVED FOUNTAIN PENHOLDER.

Almerrin P. Allen, Denmark, Iowa.—This is an improved fountain penholder that supplies the required quantity of ink to the pen during writing, while holding at the same time the main body of ink in check, and conveying it in regular and even manner to the point of the pen. The novel features are a cap extension and beveled point, connected by narrow side strips, that fit the shape of the pen.

IMPROVED FUNNEL.

John O. Barton, Chicago, Ill.—This is a convenient device for grocers and others dealing in sirups. The invention consists of a funnel, with an interior plug, to close the discharge spout, and cross wires to indicate the quantity to be measured. The funnel has a hermetically fitting screw cap with a central air tube, to which the pipe, connecting with a force pump applied to the barrel, is attached, so as to force the sirup quickly into the jug.

IMPROVED COMBINED ELECTRIC FIRE SIGNAL APPARATUS AND FIRE EXTINGUISHER.

Thomas F. Nevins and John W. Smith, Brooklyn, N. Y.—With the pipe through which the water is brought into the building and in the upper part of the room is connected a perforated pipe through which the water is discharged into the room, and in which, near the pipe, is placed a stopcock. To the handle of the stopcock is attached a weight. The stem of the weight is made with an eye to receive a pin, that is held back by a spring and is held forward by a cord which is led to different parts of the room, so that, should a fire occur, the flame may burn off the cord and cause the weight to drop, which opens the cock and causes a discharge of water into the room. In the pipe is placed a small water wheel, which, when the cock is thus opened, rotates thereby, sounding an alarm.

IMPROVED TOY CAMERA.

August Herzog, New York city.—This is a photographic apparatus, of simple construction, consisting of an upright frame, to which a camera, with sliding lens tube, is applied. Supports are also provided for a ground glass and plate holder.

IMPROVED ELECTRICAL APPARATUS.

Jerome Kidder, New York city.—This apparatus is designed for medical use, and includes several novel devices. A portion of a series of battery elements, arranged for transmitting a circuit through the body, are adapted to operate an induction coil. A new means is provided for substituting fresh fluid for that which has become spent in power, in the elements. There are new supports for the induction coil, and some novel arrangements for modifying the force of the induced currents.

IMPROVED PROCESS FOR THE MANUFACTURE OF RAWHIDE.

William Coupe, South Attleborough, Mass.—This improved process consists in submitting the hides or skins from which the hair has been removed to a succession of baths composed of a solution of lime, etc., and, when partially dry, coating them with a mixture of tallow, beeswax, and paraffin, and then submitting them to the action of a revolving drum or other suitable softening apparatus.

IMPROVED TOY PISTOL.

Otto C. Butterweck, St. Louis, Mo.—This invention consists of a pistol in which any projectile is impelled from the barrel by a concave-faced piston, around the rod of which is coiled a spiral spring. The piston rod is drawn back by means of a button or loop on its rear end, and is retained in position by a projection, on a spring trigger, which catches against the front surface of the piston; the spiral spring being compressed between the latter and the inner surface of the rear end of the pistol.

IMPROVED BUCKLE.

Charles W. Higinbotom and Frederick F. Smith, Vandalia, Ill.—This invention is an improvement in that class of buckles in which the tongue is made detachable and entirely separate fron the frame. The tongue of this improved buckle is provided with a rib or lug in the center, and with claws or points on its ends, which pass through holes in the strap or straps, to which the buckle is applied. When the tongue is adjusted in place, the rib or lug prevents displacement of the end of the strap, and aids the claws in sustaining the strain to which the strap is subjected.

IMPROVED BARBED FENCE WIRE.

Rollin G. Brown, De Witt, Iowa.—This consists in an improved fence wire, formed by interlocking with each other sections, having loops and barbs formed upon their ends.