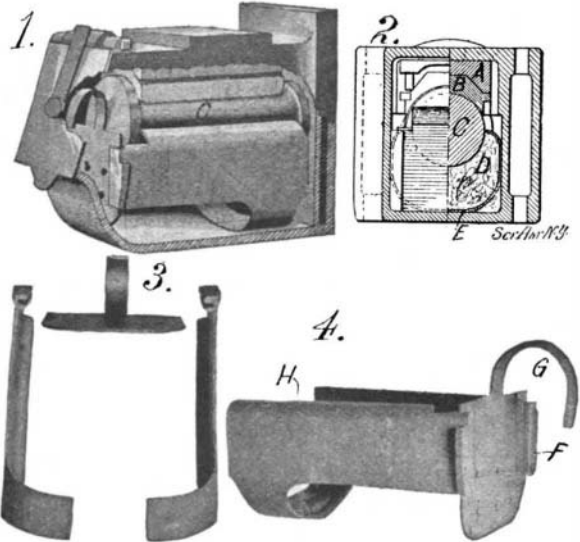




WASTE-SUPPORTING ATTACHMENT FOR JOURNAL BOXES.

The object of the attachment illustrated in the accompanying engraving is to keep the waste in a journal box from working forward and forcing open

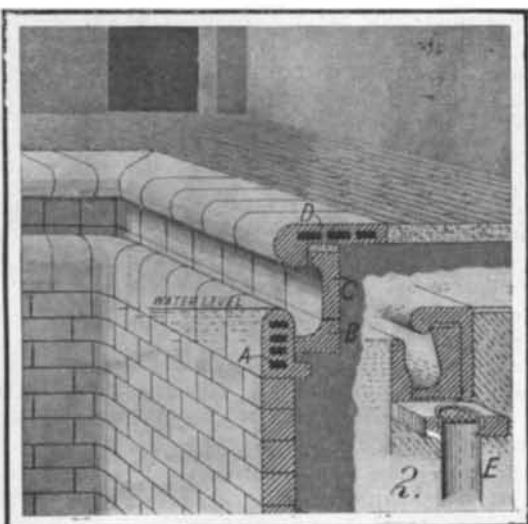


WASTE-SUPPORTING ATTACHMENT FOR JOURNAL BOXES.

the lid, and to prevent it from piling up in front of the journal collar and away from the inner end of the journal. The device also prevents the waste from getting under the journal brass. As the waste is held close to the journal under the brass, the journal is kept lubricated at all times without becoming heated. Furthermore, the device prevents cinders and dust from getting into the packing or waste. Fig. 1 of the illustration shows a journal box provided with the improved attachment. The usual wedge is shown at A and the brass at B, while the journal is indicated at C. The side waste-retaining members D are constructed as shown in Fig. 3. They are formed with curved extensions E, which serve to support them at the inner end. The front edge of each side member is provided with a lug F, in which is a slot adapted to receive the closing gate G. The upper edges of the side members are curved inward as shown at H, so as to come against the journal, and serve as a stop to prevent waste from being dragged upward under the brass. By this arrangement the packing is entirely concealed, and it is not so apt to be stolen from the boxes by the railroad hands. This attachment has been tried in actual railroad service for some time, and has shown an economy of about 45 per cent saving in packing. Mr. R. A. Billingham of St. Marys, Pa., has secured a patent on this improved attachment.

COMBINED LIFE RAIL AND GUTTER FOR SWIMMING POOLS.

It is very important that swimming baths or pools be provided with a surface drainage, so as to carry off floating grease and scum. The use of separate drains at intervals along the tank is not adequate. The dirt is washed against the walls of the tank by the waves and forms a deposit which can be removed only by scrubbing. The ideal drain is one which extends without a break around the entire tank at the normal water level. Such a drain has recently been invented which serves also as a life rail. It thereby

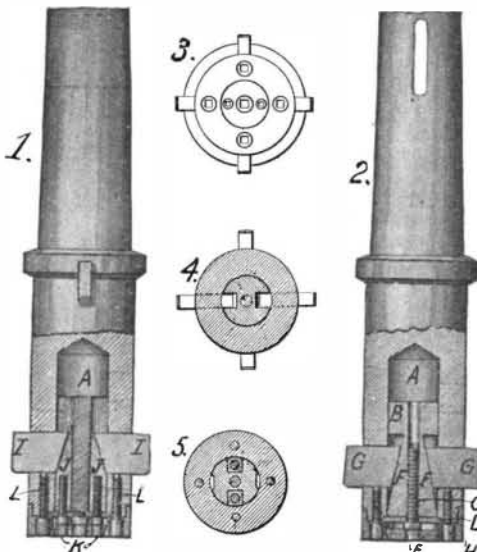


COMBINED LIFE RAIL AND GUTTER FOR SWIMMING POOLS.

overcomes another evil of the ordinary swimming tank. A metal life rail interferes with diving and prevents egress from the tank except at the steps, while ropes decay and become very filthy from constant contact with the scum of the water. The new combined life rail and drain is in the form of a gutter which runs around the entire tank. The construction is shown in the accompanying engraving. It is made up of glazed tiles and consists of a rail and overflow A, a gutter B, a vertical wall of "bull-nose flatters" C, and a cap course of "bull-nose headers" D. The water overflows into the gutter and is carried off through suitable outlets as indicated at E. The gutter slants toward the outlets to prevent trapping of the water. The cap course slants inward or toward the pool, so that water from the floor will drain into the gutter. This prevents flooding of the floor, and there is no chance for filthy water from the floor to drip into the pool. The gutter can readily be cleaned whenever desired so as to keep the tank in a sanitary condition. A patent on this combined gutter and life rail has been granted to Mr. J. Francis Booream, care of the American Enamelled Brick and Tile Company, 1 Madison Avenue, New York.

EXPANSION CUTTER-HEAD FOR BORING BRASS.

The tool illustrated in the accompanying engraving is intended especially for use in boring the hubs of car wheels, although it will be found serviceable in many other applications. It is so arranged that the cutters therein may readily be adjusted in the cutter-head. Figs. 1 and 2 of the illustration show the cutter-head in the form of a mandrel, adapted to be attached to a boring bar or a spindle. The lower end of the cutter-head is provided with a central bore A, in which a wedge block B is adapted to slide. This wedge block may be adjusted in the bore by means of a screw C threaded therein. The latter is formed with a head, which is held between plates D and E. The plate E, which takes the thrust, is secured to the bottom of the cutter-head by a cap ring threaded thereon. The block B is formed with wedge faces F, adapted to bear against the inner edges of the opposite roughing cutters G, which project through the sides of the cutter-head. By adjusting the wedge



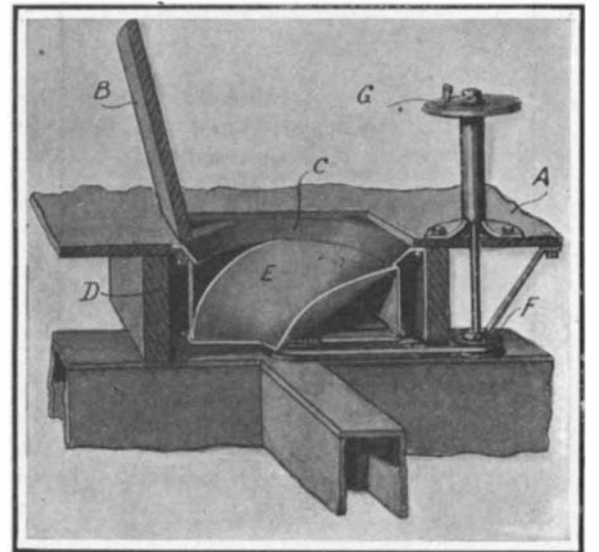
EXPANSION CUTTER-HEAD FOR BORING BRASS.

block into or out of the bore A, the cutters G are correspondingly advanced or retracted. When the desired adjustment has been made, they are clamped in place by means of set screws H. In addition to these cutters, the tool is provided with two finishing cutters, disposed at right angles to the first ones. These are indicated at I in Fig. 1, and are adjusted by two wedges J, which bear against their inner edges. Two screws K are threaded into the wedges J, and provide means for adjusting the position of the cutters I. These screws are provided with heads, which like that of screw C are held between the plates D and E. The plate E is perforated as indicated in Fig. 3, so as to permit of introducing a key there-through into the square sockets formed in the ends of the screws, so that the screws may be turned to make the desired adjustments. When the cutters I have been properly adjusted, they are locked in place by means of set screws L. It will be observed that the roughing and finishing cutters may be separately adjusted. The arrangement of the cutters is clearly shown in Fig. 4, which is a section taken on Fig. 1 directly above the cutters. Fig. 5 is a section on Fig. 2, taken immediately below the cutters. A patent on this expansion cutter-head has been granted to Mr. Charles M. Buck of Huntington, W. Va.

DISTRIBUTER FOR GRAIN BINS.

With a view to facilitating the dumping of grain and similar substances in bins, a new distributing device has been devised. This distributing device is placed at the intersection of the walls of the bins, so that the grain may be dumped into any one of the

four adjacent bins. The accompanying illustration shows the distributor partly in section and set in the dumping floor A over the bins. The opening in the floor is normally closed by a trap door B. A guide ring is bolted to the bottom of the floor, and is provided with a conical flange C which serves to direct the grain into the distributing drum D. The latter is formed with a chute E, which at its lower end has an opening in the form of a sector of a circle. The drum is pivoted in a bearing plate attached to the upper walls of the bins, and it is belted to a pulley F, which in turn is carried by a shaft passing up through the floor. The upper end of the shaft carries an operating

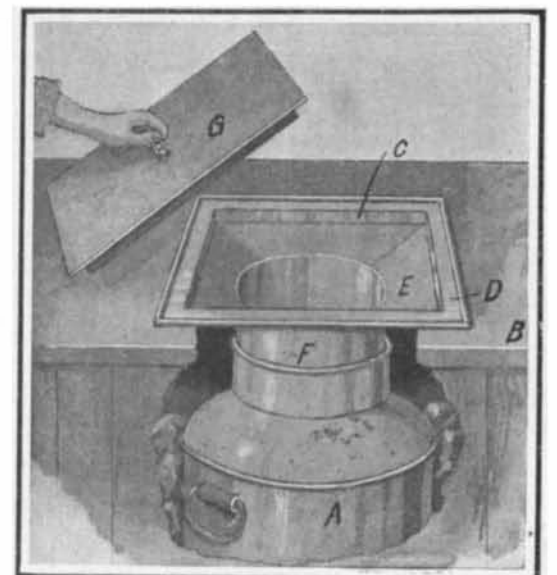


DISTRIBUTER FOR GRAIN BINS.

crank G, with a pointer thereon adapted to be moved over a dial. This dial is marked with numbers indicating the four bins in the range of the distributor. As the crank is turned to the different numbers, the chute is moved so as to deliver the grain to the corresponding bin. A patent on this improved distributor has been granted to Mr. J. R. Pattinson of Stafford, Kan.

SANITARY MILK AND CREAM SAVING DEVICE.

In the milk and cream cabinets generally used in lunch rooms, it is impossible to prevent milk or cream which is spilled while hastily filling the glasses, from flowing into the ice chamber around the can. The milk fouls the ice and soon becomes sour, making it necessary to clean out the ice chamber quite frequently, and a large amount of ice is lost whenever the cabinet is cleaned. By preventing the admission of milk into the ice chamber, the cabinet may be kept sweet and sanitary, and it need be emptied and cleaned only at such intervals as the presence of impurities in the ice may demand. The accompanying illustration shows a milk cabinet provided with a device which prevents the milk that is spilled from coming in contact with the ice. The milk can is shown at A, directly under the square opening in the top B of the cabinet. Fitted into this opening is a rectangular sheet-metal device C, which is formed with a flange D that rests on the top of the cabinet. This rectangular member is provided with an inclined wall serving as a funnel to direct the spilled milk into the milk can. Connecting the inclined wall E with the top of the milk can is a collar F, adapted to fit closely into the mouth of the can. It is evident that any milk spilled into this device will flow back into the can, and will have no opportunity of entering the ice chamber. In connection with this milk-saving device, a sheet-metal cover G is employed provided with a flange which fits snugly into the rectangular mem-

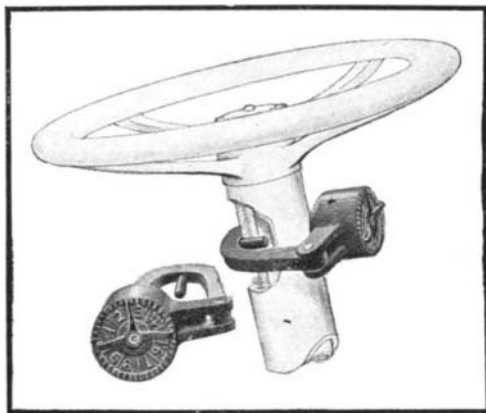


SANITARY MILK AND CREAM SAVING DEVICE.

ber C. Mr. Charles C. Cousins of 230 Middle Street, Portland, Me., has secured a patent on this milk-saving device.

A NEW AUTOMOBILE LOCK.

A convenient combination lock has recently been devised which may be attached to the steering column of an automobile so as to prevent it from being operated. A quarter-inch hole is drilled through the outside and inside casings of the steering column, and the hasp of the lock which passes around the column is formed with a lug adapted to enter this hole. When

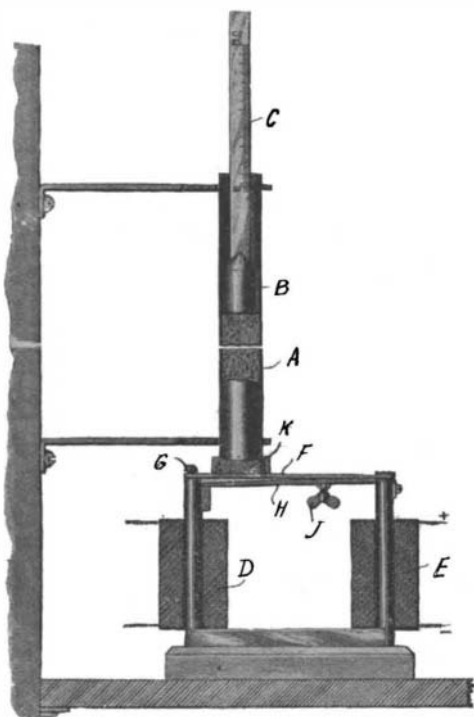


A NEW AUTOMOBILE LOCK.

the lug is locked in this position it is impossible to turn the steering gear, which makes the car utterly useless to any one who is unable to open the lock. The lock is of the three-tumbler type, and is of such form that it may be operated in the dark as readily as in the light. The combination may be changed at a moment's notice. A modification of this lock has been devised which is of the four-tumbler type and may be adjusted for different sizes of steering columns.

APPARATUS FOR DETERMINING DENSITY.

The usual method of determining the density of powdered or granulated materials involves the measuring of a given volume of the material by filling a vessel to a predetermined mark, and then weighing the measured quantity to find the ratio of the weight to the volume. The personal equation enters into this operation to such a large extent that accurate results are very difficult to obtain. The variation is due to the fact that different operators pack or jar the material down in the container to different extents. Further variations may arise from the fact that the material is naturally rough and uneven, and it is difficult to ascertain when the container is filled exactly to a given line or mark. The accompanying engraving illustrates an improved apparatus, in which a given weight of material is placed, and its volume determined automatically. It consists of a tubular container A, for the material to be tested, and a plunger B, closely fitting the interior of the container, but free to reciprocate therein. An upwardly-extending stem C, carried by the plunger, is graduated, so that it is



IMPROVED DENSITY APPARATUS.

possible to determine the amount of the material in the container. In order to pack the material in the container, a vibrator is provided consisting of a wrought-iron magnet, on one arm of which a spool D is fitted, while the other arm carries a spool E. The spool E is connected with a source of direct current, while the spool D receives alternating current. The armature F of the magnet is normally magnetized by its contact with the arm which carries the spool E, and its opposite end is vibrated, owing to the alter-

nating field set up by the coil D. The vibration of the armature is limited by a set screw G. A spring H, which may be adjusted by the screw J, serves to assist the movement of the vibrator. The latter carries a button K, on which the tube A is mounted. In practice 100 grammes of the material is carefully weighed out and placed in the tube A, and then subjected to the vibrating action, so as to compact it under the plunger B for a definite period of time; then its density may be observed by dividing its weight by the volume indicated on the scale, which is calibrated in cubic centimeters. Mr. William D. Mount of Saltville, Va., is the inventor of this improved apparatus.

AUTOMATIC STARTING DEVICE FOR SIPHONS.

There are many occasions in which it is extremely objectionable to start a siphon tube by sucking with the mouth, for instance in preparing certain saturated

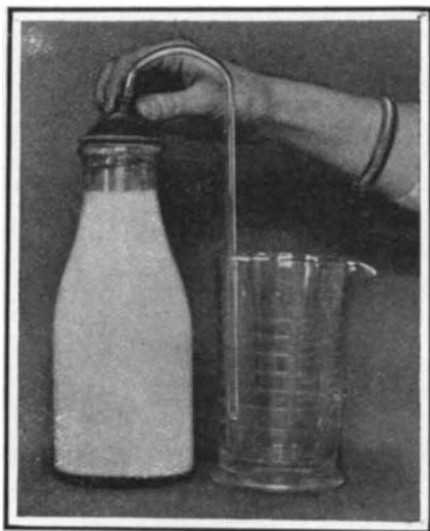


Fig. 1.—THE SIPHON IN POSITION READY TO BE STARTED.

solutions of chemicals which are poisonous or distasteful. Also in preparing infant foods, where it is desirable to draw off the lower part of a bottle of milk, leaving the upper part for modification in the usual manner, it is a decidedly insanitary practice to start the tube with the mouth. In order to obviate such a necessity, a simple starting device has been invented whereby the milk is forced out, not by suction but by compression of the air in the bottle. The device consists merely of a cap of rubber mounted on the siphon tube and arranged to rest on the mouth of the milk bottle as shown in Fig. 1. The neck of this cap is seized between the thumb and finger and pressed downward, carrying the tube with it, until the cap is virtually inverted as shown in Fig. 2. While the cap is being pressed down the air in the top of the bottle is compressed, thus forcing the milk up through the tube without bringing the rubber into contact with the milk. The siphon then continues to run; but as the milk runs out of the bottle a continuous supply of air must run in to take its place, and in order to prevent the cap from being sucked into the

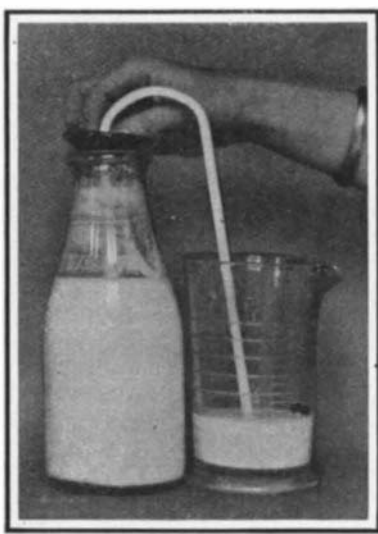


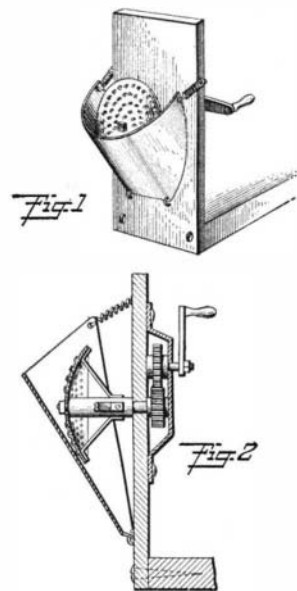
Fig. 2.—THE CAP DEPRESSED AND THE SIPHON STARTED.

mouth of the bottle and sealing it, a series of lugs are provided on the under side of the rubber. When the rubber turns inside out these lugs space it from the edge of the bottle so as to permit the necessary ingress of air. The starting device contains no valves in which the milk may lodge and become sour. The tube may readily be cleaned and sterilized, and in case the cap should become foul it may be slipped off the tube and boiled. It will be understood that the inner leg of the siphon may be lowered to any desired

degree so as to draw off top milk, bottom milk, or middle milk. The inventor of this improved siphon is Mr. Walton Harrison of Bloomfield, N. J.

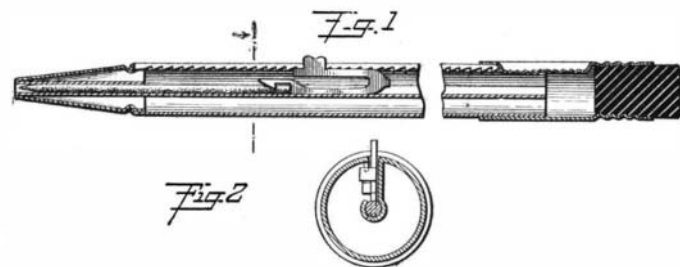
ODDITIES IN INVENTIONS.

VEGETABLE GRATER.—The ordinary method of grating vegetables by rubbing them over a roughened surface is quite liable to injure the hands. As a substitute for this primitive process, a small hand-operated machine has been devised, which is illustrated herewith. It consists of a convex grating disk, mounted on a shaft, which is connected by a suitable gearing with an operating handle. An inclined hopper is arranged in front of the disk. The hopper is hinged at its lower end, and is held in yielding engagement with the disk by means of a pair of coil springs attached to the upper end. The vegetables to be grated are dropped in the hopper, and when the handle is operated they are grated or ground between the disk and the hopper.



VEGETABLE GRATER.

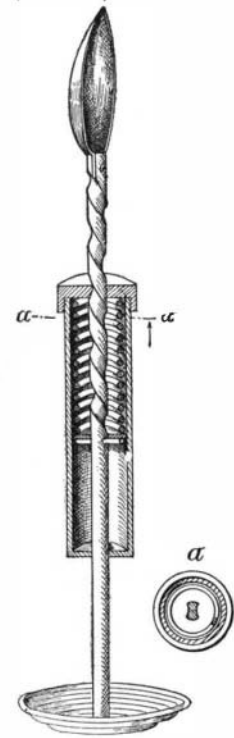
NOVEL LEAD PENCIL.—Pictured in the accompanying illustration is a pencil of the type arranged to hold detachable lead crayons. The casing of the pencil is formed of a single piece, as best shown in Fig. 2. The body of the casing is of cylindrical form, with a slot at one side, and one edge of the slot having an inwardly-projecting serrated flange, while at the other side of the slot the metal is bent inward to the center of the cylinder, where it is formed into a receiver for the crayon. A small catch is arranged to slide in the slot, being provided with a hook that engages the



NOVEL LEAD PENCIL.

crayon, and a spring extension, which engages the serrated flange. A thumb piece on the spring member projects through the slot, and enables the operator to release the catch for engagement with the teeth on the flange and allow of moving the crayon to any desired position.

COMBINED POTATO MASHER AND SPOON.—The accompanying illustration shows a novel implement for use about the kitchen. It consists of a rotating beater or masher for potatoes, combined with a spoon. The spoon bowl is formed on the upper end of a shaft which at its outer end carries a coiled spring that serves as the mashing element. A casing is fitted over the shaft. A spiral groove is formed in the upper half of the shaft which projects through an opening in the cap of the casing. The opening is of the form indicated in the cross-sectional view so that it will engage the spiral groove. A spiral spring in the casing serves to hold the casing normally in the uppermost position. In use the casing serves as a handle for the device, and when it is operated as a masher, owing to the spiral groove the shaft will be given a rotary motion. The coiled spring beater will yield or open on the downstroke of the casing and close on the upstroke, so that in addition to the reducing action resulting from the rotation of the masher it will operate to mash the potato operated upon.



COMBINED POTATO MASHER AND SPOON.

The electric lighting industry is represented in the United States by 5,264 companies and municipal plants.