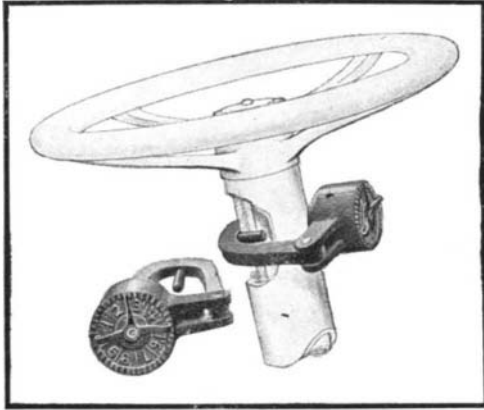


ber C. Mr. Charles C. Cousins of 230 Middle Street, Portland, Me., has secured a patent on this milk-saving device.

**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

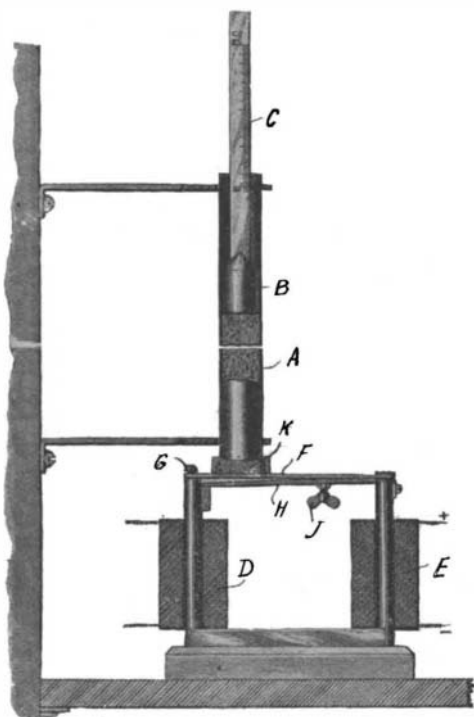


**A NEW AUTOMOBILE LOCK.**

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



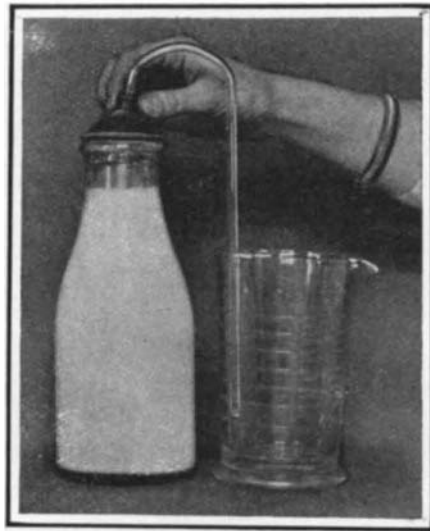
**IMPROVED DENSITY APPARATUS.**

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.

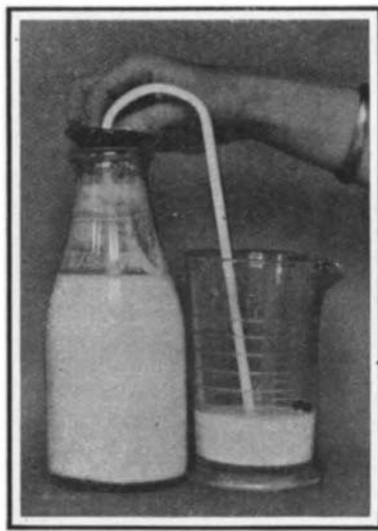
**AUTOMATIC STARTING DEVICE FOR SIPHONS.**

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



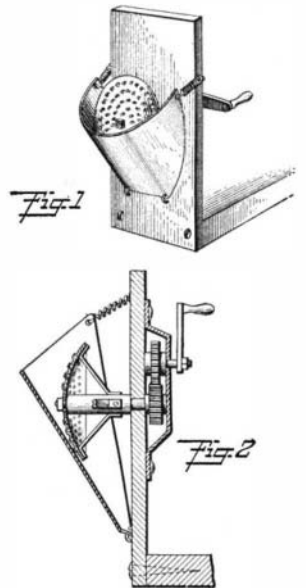
**Fig. 2.—THE CAP DEPRESSED AND THE SIPHON STARTED.**

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.

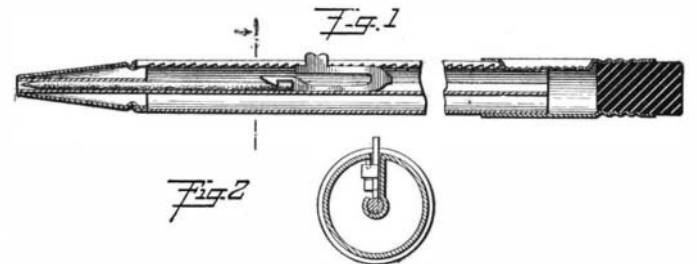
**ODDITIES IN INVENTIONS.**

**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.**

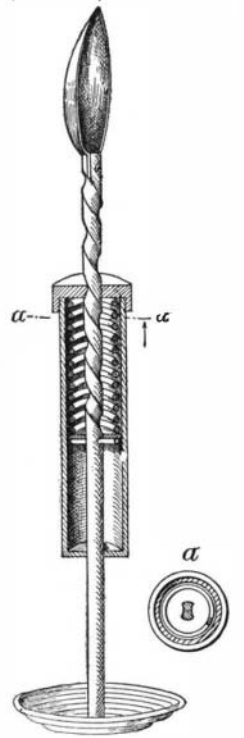
**NOVEL LEAD PENCIL.**—Pictured in the accompanying illustration is a pencil of the type arranged to hold detachable lead crayons. The casing of the pencil is formed of a single piece, as best shown in Fig. 2. The body of the casing is of cylindrical form, with a slot at one side, and one edge of the 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.