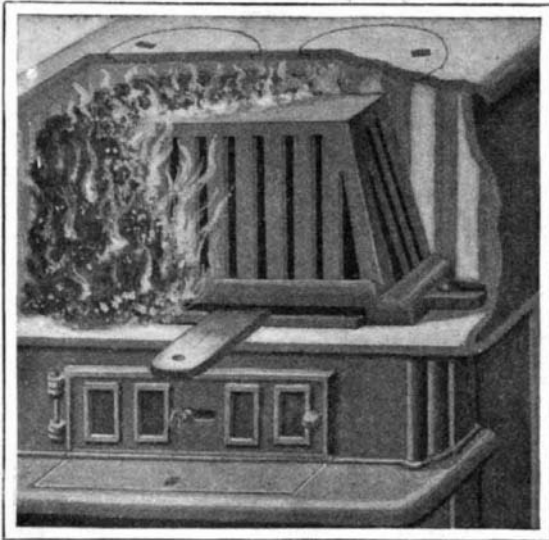




**AIR BOX FOR STOVES.**

In the accompanying engraving we illustrate a novel device which is applicable to ranges, stoves, and open grates, and which aims to provide a better control of the draft than has heretofore been possible, thus effecting a saving in fuel. The device has the form of a box, smaller at the top than at the bottom. The rear of the box is left open, while the other three sides are formed of inclined walls provided with long vertical

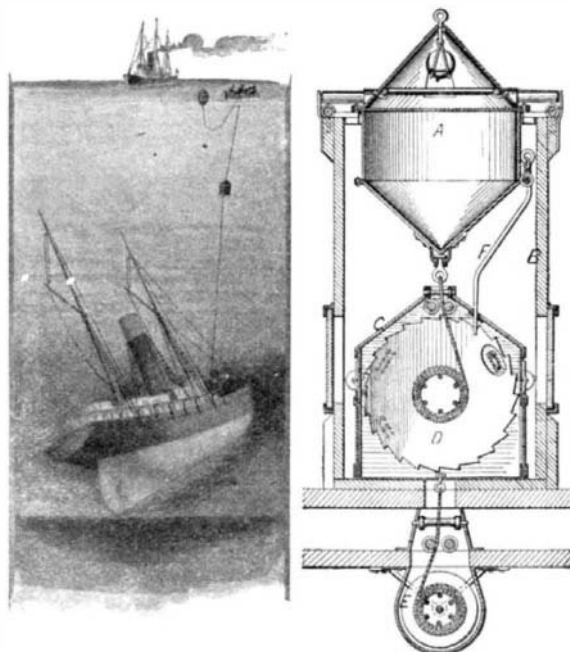


**AIR BOX FOR STOVES.**

apertures. The bottom of the box is provided with a sliding plate, the purpose of which will be presently explained. The air box, as the device is termed, is placed on the grate of a stove, to which it is secured by means of bolts. It thus takes up most of the space usually occupied by the fuel. The rear of the air box fits closely against the rear wall of the firebox, but a narrow space is left on the other three sides to receive the fuel. By this means the area of the fire is greatly increased, while the depth is reduced. Air passes up from the grate into the box and thence through the apertures to the fire. The plate at the bottom of the air box serves as a damper which can be moved in or out to control the amount of air fed to the fire. Owing to the shallowness of the fire and the general distribution of air, a perfect combustion of the fuel is assured. In proof of the value of the air box it is pointed out that there is a material reduction in the amount of smoke from a stove supplied with this device. The inventor of the air box is Miss B. J. Mouat, P. O. South Dunedin, New Zealand.

**APPARATUS FOR MARKING SUNKEN VESSELS.**

An apparatus for marking sunken vessels and enabling the immediate recovery of the principal valuables of a ship, has just been invented by Mr. Frederick W. Johnson, of 418 Jefferson Street, Seattle, Washington. The apparatus comprises a buoy connected with the vessel and adapted to rise to the surface as the vessel sinks. The buoy is provided with a bell which is adapted to ring as the buoy works in a seaway. The buoy is connected by a line to the strong-box of a

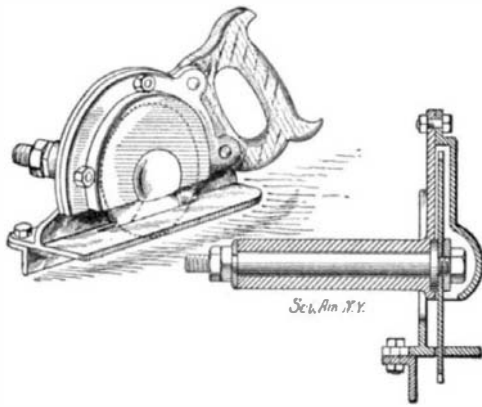


**APPARATUS FOR MARKING SUNKEN VESSELS.**

ship and this box is, in turn, connected by a reel to the ship. Should the ship sink, the buoy would immediately rise to the surface to mark the spot and the bell in the buoy would be sounded by the waves. Then by hauling up on the buoy line the strong-box would be raised to the surface and the ship's papers, specie, invoices, accounts, etc., would be immediately recovered. The line connecting the box with the ship can now be detached and secured to the buoy to mark the spot for further salvage operations. In the accompanying engraving one of the views is a section through the buoy and the strong-box. The buoy, which is indicated at A, rests on top of a housing, B, built on that part of the deck house occupied as the purser's office. The strong-box, which is indicated at C, is connected by a line with the buoy. Rollers are mounted at the top of the housing to prevent the line from catching when the vessel sinks. The reel carrying this line is provided with a ratchet wheel, D, the teeth of which are engaged by a rod, E, depending from the buoy, and which prevent uncoiling of the reel while the buoy rests in the housing. The strong-box is also provided with anti-friction rollers at all sides to permit easy removal from the housing. The line connecting the box with the ship is wound on the reel, E. The bell in the buoy consists of a ring which is adapted to be struck by a ball. Clips projecting from the annular bell serve to throw off the ball and prevent it from rolling noiselessly around the ring. This ball is normally suspended in a sling at the top of the buoy, but is released by a cord when the buoy rises from the housing. In order to hold the buoy level in a seaway and prevent it from toppling over a short piece of cable may be tied to the swivel ring at the top of the buoy and be secured to the main cable about three feet below the buoy.

**ODDITIES IN INVENTIONS.**

**A PORTABLE ROTARY HAND-SAW.**—A patent has re-



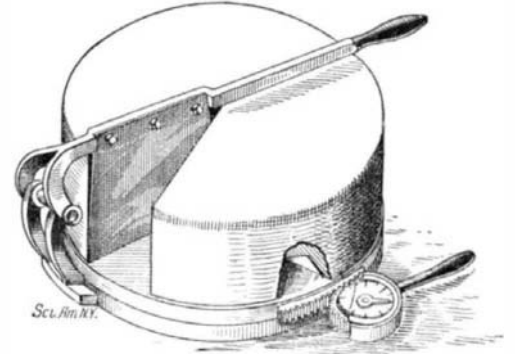
**A PORTABLE ROTARY HAND-SAW.**

cently been secured on a portable hand-saw with revolving blade. This saw may be used for cutting grooves of any desired depth in places where an ordinary saw cannot be conveniently used, for example, in cutting grooves in window sills for various kinds of weather strips or for cutting grooves in floors at the lower end of a partition. The saw is secured by a nut to the end of an axle which is mounted to turn in a suitable hub. Secured to the hub is a guard which covers the saw. To this guard a handle is attached. The guard is adjustably mounted on a bracket by means of bolts engaging slots therein and thus permitting the saw to be set for the desired depth of cut. As a means for revolving the saw the inventor proposes to use a small electric motor mounted on the device and coupled to the axle.

**AN OVERLAND ROWING SHELL.**—Boat racing, while a very interesting and exciting sport, is limited to a few schools and colleges, which are favorably located near large bodies of water. For the benefit of unfortunately-situated institutions, an inventor has designed the rowing vehicle, which we illustrate herewith. On it a crew may develop rowing muscles, and learn to keep stroke without going near the water. A rail extends along each side of the vehicle, to which straps are attached. By alternately pulling on these straps and pushing back against foot braces, the movable

seats are given a reciprocating motion, which is employed to operate the driving mechanism and propel the vehicle. Although this vehicle is not of much value as a training for rowing on water, as it does not teach a man how to handle an oar, yet it might, with advantage, be used for land boat races between competing colleges.

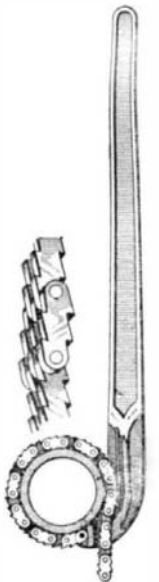
**COMPUTING CHEESE CUTTER.**—A novel device for cutting cheese has recently been invented. The device comprises a simple computing mechanism whereby it is possible to gage the exact size of slice that should be cut for a certain price. The cutter is journaled



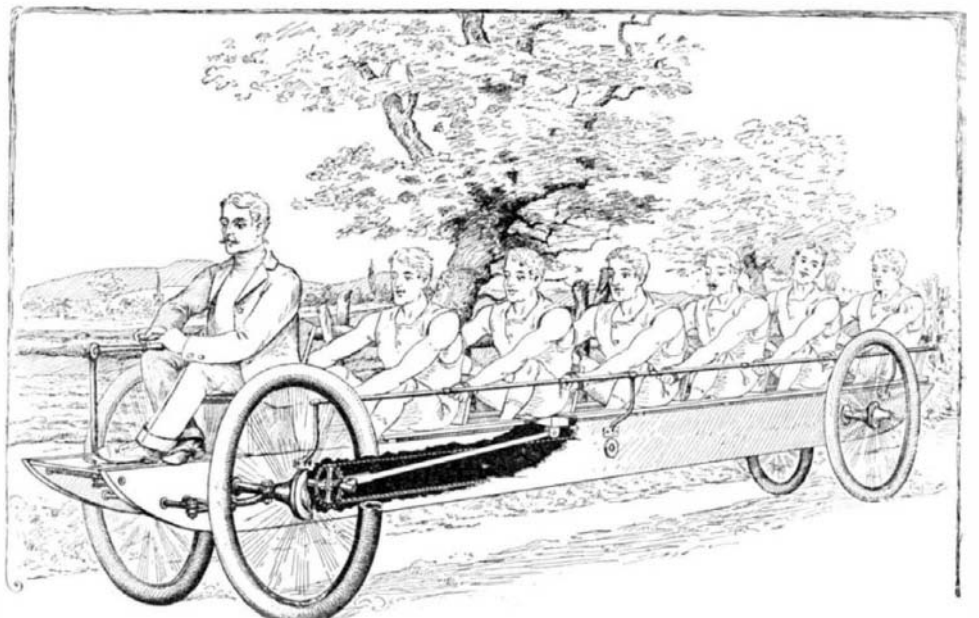
**COMPUTING CHEESE CUTTER.**

to a fixed base on which a revolving table is mounted. The cheese is carried on this table and is revolved by means of a pinion engaging teeth formed on the periphery of the table. The pinion is provided with a pointer which moves therewith over a graduated disk and indicates the length of the arc through which the cheese is turned. Different disks are provided for cheeses of different price or weight and these disks can be readily placed on the indicator. Each disk is graduated for five-cent slices, thus for a \$3 cheese in which there would be sixty five-cent pieces, a disk would be selected which would indicate arcs of six degrees of the revolving table. Owing to the gearing the pinion would have to be turned through thirty degrees to effect a six-degree movement of the table, thus insuring great accuracy in cutting the pieces to the proper size.

**CHAIN WRENCH.**—A resident of Milwaukee has invented a chain wrench which is an improvement on previous inventions along this line. In the ordinary type of chain wrench the fixed head is formed with teeth and thus only one or two teeth actively engage the pipe or cylinder on which the wrench is used. In another common type of wrench the head is bifurcated, each furcate member being formed with gripping teeth and the chain being pivoted between them. This makes the head too wide for use on short pipe-fittings, flanges, elbows, and the like. In the present invention the head is not serrated but the chain used is provided with teeth; thus the number of teeth gripping a pipe is proportional to the surface of the pipe. At the bottom of the recess in which the chain is received a strip of rubber is placed and this is protected by a thin metal covering. The purpose of this resilient lining of the recess is to avoid too great a pressure on the links of the chain and permit the sides of the recess to take a portion of the strain.



**IMPROVED CHAIN WRENCH.**



**AN OVERLAND ROWING SHELL.**