Patent Department

Device for Preventing Shipwrecks.

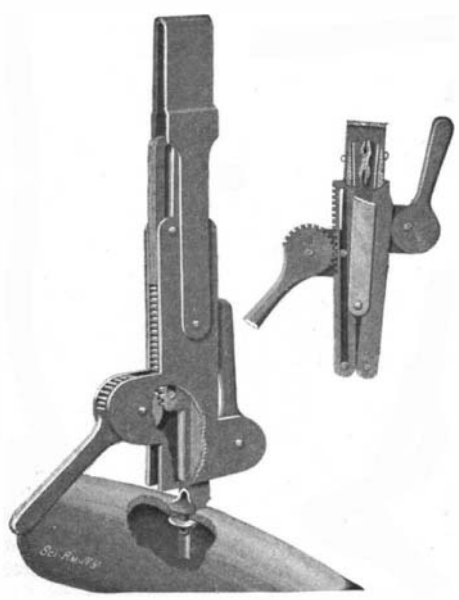
During the last few years many vessels navigating the waters along the coast of British Columbia and Alaska have been wrecked. The American consul at Vancouver remarks in a recent report that he has heard complaints from mariners of the bad lighting of the coast north of Vancouver. It likewise appears that the waters to the northward have not been sounded as fully as the safety of vessels requires. In order to provide mariners with some means of safety it would seem that a device has recently been invented which will minimize the danger hitherto encountered. This is an automatic system of signaling which will warn ships of their approach to dangerous rocks and coasts in all weathers, when even a flashing light might not be seen and the booming of a foghorn be unheard. A metallic conductor is fixed on an elevation ashore, or a lightship, or reef, or light-house. From this, etheric waves are transmitted over a zone which has a radius of seven miles. All vessels within that area which are fitted with receivers are warned of their proximity to danger, the distance and the point of the compass being registered. At the same time, a bell rings and the receiving instrument records the name of the place that is being approached. The automatic part of the invention consists of steel bearings with a number of teeth which pass over a Morse transmitter. No operators are needed. The instrument or machine works absolutely automatically. In its elementary principles, the system resembles Marconi's method of wireless telegraphy, but in detail the system is essentially different.

TIRE-REPAIRING TOOL.

A tool which is especially adapted for repairing punctured pneumatic tires is the subject of the illustration herewith presented. The credit for the invention of the tool belongs to Benjamin J. Piquet, of Woodbury, N. Y.

The tool comprises a frame composed of two plates formed with ears arranged to lie side by side. Between one pair of ears a handled pinion, *B*, is pivoted; and between the other pair of ears, a handled eccentric is pivoted. The pinion meshes with a rack-bar, which slides longitudinally between the frame plates and which is slotted to receive pins uniting the frame plates. The eccentric is designed to engage in one position a swinging bar, *D*, pivoted between the frame-plates. Both bars, *D* and *C*, are formed with hollowed jaws and cutting edges, so that when their lower ends are brought together a tubular punch is produced. A plug-receiving yoke is pivoted on the frame, and is of such size that the frame can be turned end for end therein.

In operation, the handles of the eccentric and pinion are carried up, whereupon the bar, *D*, is held against



THE TIRE-REPAIRING TOOL IN OPERATION.

movement. The punch formed by the lower end of the two bars is inserted at the puncture to produce a clear, round aperture. The aperture having been made, the tool is drawn from the tire and the frame is turned end for end in the yoke. The pinion is now turned until the jaw of the bar, *C*, is drawn within the frame; and the eccentric is also turned to permit the bar, *D*, to swing out. A double-headed plug, *A*, is then placed in the yoke, as shown in the small view. The bar, *C*, is now run outward and its jaw brought at one side of the plug, and the eccentric is manipulated to force the other jaw against the opposite side of the plug. The plug will now be held between the jaws. By reversing the frame again, the jaws can be introduced into the aperture in the tire. Next the pinion, *B*, is manipulated to draw the bar, *C*, from the tire; and one portion of the two heads of the plug in expanding will engage one with the outer and the other with the inner face of the tire. Upon withdrawing the other jaw the remaining portion of the heads will take a similar position, completely closing the aperture.

A MECHANICAL VEGETABLE-CUTTER.

The accompanying illustration pictures a device for cutting or grating vegetables, which is the invention of Frederick Suellentrop, of Linn, Mo.

The vegetable-cutter comprises an upright carrying at its top a tray open at the front and rear. The upright is attached to a table by means of a clamping

A VEGETABLE-CUTTING MACHINE.

device carried at the bottom of the upright. A disk-like cutter for slicing cabbages, potatoes, or the like is carried on a spindle, having a bearing in an arm on the upright. By means of a crank the spindle is turned, and with it the disk-cutter. The disk is formed with radial slots; and one wall of each slot is turned outward toward the tray to form cutting blades. Another form of disk can be used, provided with openings, the walls of which are extended inward to form grating surfaces, this device being designed for the grating of horseradish, cocoanut, or the like.

The vegetable is held by one hand in the tray and against the disk, the crank being turned by means of the other hand. An inwardly-turned lip prevents the upward movement of the vegetable in the tray. By means of this device vegetables are rapidly prepared for table use.

Milk Flour in Sweden.

In a report to the State Department, Robert S. S. Bergh, United States Consul at Gothenburg, says:

Dr. M. Ekenberg, of Gothenburg, has made a discovery which will be of importance in dairy farming. He claims to have invented an apparatus by which milk can be brought into the form of powder, like flour in appearance, but possessing all the qualities of milk in concentrated form, moisture excepted. It is said that this milk flour is completely soluble in water, and can be used for all purposes for which common milk is employed. The milk flour does not get sour, does not ferment, and in the dry state is not sensitive to changes in the weather. It can be kept and transported in tin cans, barrels, bags, etc. The cost of production Dr. Ekenberg has estimated at about 27 cents per 106 quarts, and he thinks that flour made from skimmed milk can be sold for about 13 cents per pound. At a recent meeting of the Academy of Agriculture, Dr. Ekenberg exhibited samples of the milk flour which received favorable comment. It is considered that the invention will be of the greatest importance for the utilization of skimmed milk, which heretofore has largely been wasted, but in the dry form can be transported all over the country without losing any of its original good qualities.

Another Substitute for India-Rubber.

Substitutes for India-rubber and gutta-percha, fibrous and elastic in nature and uniform in color, are claimed to be attained by a process patented by Mark Sherwin and Hans M. Mathieson, of Cambridge, Mass. Fatty oils in the pure state or fatty oils mixed with various quantities of gums, resins, waxes, asphalts, pitch, tar or kindred substances; sulphur or sulphur chloride; coloring matter; a volatile solvent, such as naphtha, turpentine, carbon bisulphid, are the ingredients used. The fatty oils are mixed with the gums reduced by the solvent; the sulphur chloride is gradually added and then the coloring agent. Sulphur chloride is then again added.

Electric Diet.

A member of the medical faculty of the University of Michigan has discovered that a galvanic current promotes the growth of tissue, or, in other words, increases the amount of flesh. That electricity exerts a beneficial influence upon the growth of plant life has long been known. Perhaps this circumstance suggested the idea of electrically stimulating animals.

Two cages of guinea pigs, six to the cage, were experimented with. The guinea pigs were all exactly the same age. Through one of the cages an electric current was passed day and night. The other cage was in no way electrified. For a stated period the animals in both cases were fed with precisely equal quantities of food of the same quality. The experiment proved that guinea pigs who lived in the electrified cage gained in weight during a measured time 10 per cent more than those in the non-electric cage. If, as a result of these experiments, electricity be applied on a large scale to the fattening of animals used as food, we may some day hear of "electric bacon" or "electric beef," which will command a special price.

A Process of Devulcanizing Vulcanized India-Rubber Scrap.

India-rubber manufacturers have long been seeking a method of removing sulphur from old vulcanized India-rubber. An invention patented in the United States by an Englishman may perhaps point out a means for accomplishing their purpose.

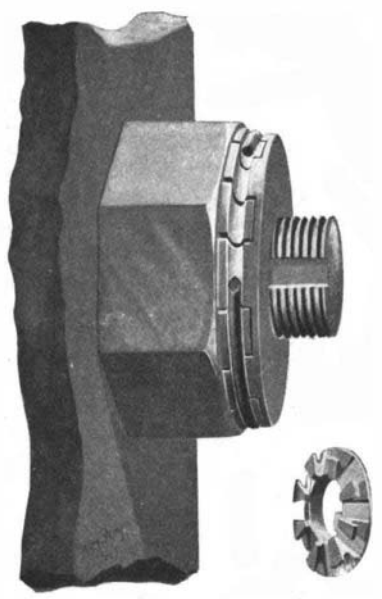
According to this invention the vulcanized rubber is cut up into small pieces and submitted in an iron tank to the action of solvents, such as naphtha, benzol, turpentine spirits, and the like, capable of dissolving sulphur but not of dissolving India-rubber at the heat employed. The tank is heated to a point not exceeding the volatilizing temperature of the respective solvents at the pressure used, and certainly not above 120 deg. F. The bulk of the sulphur contained in the vulcanized rubber is dissolved out into the solvent, while the rubber remains practically unaffected, since the temperature is below the dissolving-point of rubber. After the digesting process has been carried on for several hours the solution is drawn off, distilled and the solvent recovered. If the rubber be not entirely devulcanized a fresh batch of solvent is admitted to the tank.

AN IMPROVED NUT-LOCK

A nut-lock of novel construction which is adapted for secure engagement with a bolt-thread, and which affords means for conveniently releasing the nut from the bolt-thread, has been patented by John H. Ferguson, of Zimmerman, Ohio.

The lock comprises essentially three parts—a nut body, a locking-ring, and a wire keeper-ring. The nut body has ears on one end; and the locking-ring has corresponding ears. When the locking-ring and nut are fitted together, the ears are interlocked. The ears on the nut and on the locking-ring have a peripheral groove, which is designed to receive the spring-wire ring when the nut body and locking-ring are fitted together.

A locking-key within the locking-ring is arranged to



AN IMPROVED NUT-LOCK.

slide in a shallow channel formed in the bolt. When the ring is applied, the interlocked ears of the nut and ring form a continuous wall; and in the groove formed in this wall by the ears, as before mentioned, the spring keeper-ring is inserted to clasp the ears. The nut can be freely screwed upon the bolt when the locking-ring is detached. When the nut is placed where it is to be locked on the bolt, the locking-ring is slipped upon the bolt body and the key entered within its channel. When the ears are fully engaged, the spring-ring is spread by any suitable means so that it may expand to enter the groove.