

**A NOVEL BICYCLE.**

The peculiarity of the bicycle shown in the accompanying illustration is that it is propelled by a person in a walking attitude instead of sitting. It will be observed that the usual sprocket wheel and driving pedals are absent, and in place of them are two spur wheels mounted on each end of a horizontal ball-bearing supported shaft, one on each side of the bicycle frame.

Means are provided for elevating this shaft to elevate the incline of the driving belts, and the latter are tightened by adjusting the telescopic brace connected with the rear fork backward or forward and securing it with a small nut on the under side. Over these wheels pass two open-meshed broad sprocket chain endless driving belts which connect with smaller pinion sprocket or gear wheels keyed on two smaller ball-bearing supported shafts located at the lower extremity of each of the rear forks of the bicycle. Mounted on one of these shafts alongside one of the pinions is a larger open gear wheel which meshes into the small driving pinion gear wheel on one end of the rear bicycle wheel ball-bearing shaft, the latter being supported upon the rear bicycle framework. At the upper end of the rear fork is a saddle which is turned into a vertical position when the bicycle is in operation, but can be used in a horizontal sitting position when coasting.

There are the usual braking appliances operated from the front handle.

To operate the bicycle the rider, steadying it by the handles, gives it a slight push forward, then jumps upon the two belts, pushing the feet alternately backward down the inclined belt as in the act of walking, raising one foot forward over one belt as the other foot is going backward on the other. The slow movement of the belt is converted into a rapid motion at the driving pinion through the medium of the large gear wheel on the shaft of the rear belt pinion.

For this bicycle, recently patented by Mr. Henry C. Weeks, of Bayside, N. Y., the inventor claims advantages over the ordinary type in the fact that the rider stands erect and brings into action many more muscles than in a sitting position, which is much more healthful and invigorating, while the weight of the body in traversing down the inclined belt assists in the power of propulsion.

The inventor states that this particular form may be modified by reducing the size of the rear wheel

**WEEKS' WALKING BICYCLE.**

and enlarging the size of the forward wheel, converting that into a power wheel, but maintaining the same belt form of power transmission.

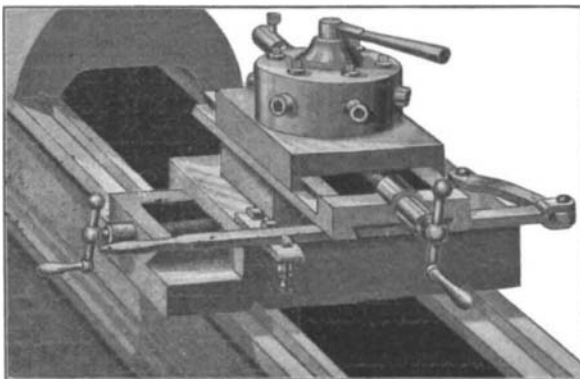
A Recreation Submarine Boat.

A Perth Amboy inventor has patented a device "whereby those who desire it may experience the novel sensation of diving in a water-tight submarine boat, making a trip under water, and coming to the surface again at the landing place." Means by which the "novel sensation" is obtained are a waterway deep enough to submerge the boat; a track in the waterway; a boat moving along the track; and mechanism for propelling the boat. The track is endless. The boat describes a circuit, so that the passengers are received and discharged at the same elevated point. This elevated point of the track is connected with the main submerged portion by inclines.

Recently we described an open submarine boat, beside which this one seems tame in the "recreation" that it affords.

LATHE ATTACHMENT.

Considerable difficulty has been experienced among machinists and brass finishers with the clutch for holding the tailstock of a turret lathe in working position. As some of our readers are aware, the turret in most turret lathes can be quickly moved forward by the operation of a hand lever, and held in this forward position by tightening a clutch on the tailstock. This clutch, while serving its purpose very well for light work, has nevertheless been found wanting in heavier classes of work. Where large reamers or cutters are used in working hard metals, the tailstock cannot be held firmly and is bound to slip. Another serious objection is that the clutch is very liable to break, entailing considerable expense for repairs. A

**AN ATTACHMENT FOR TURRET LATHES.**

very simple way of avoiding these difficulties has just been brought before the public by W. H. Dent, of 1030 East 169th Street, New York city. A small attachment is bolted to the lateral slide of the tailstock, as shown in our illustration.

This attachment consists of a body plate, from which projects a stop-pin for the lever and a spring latch. The spring latch is of the ordinary coil-spring and plunger type. A finger-piece on the lower end of the plunger may be grasped by the operator to withdraw the latch whenever desired. A pin carried by this finger-piece enters a hole in the sleeve of the latch, and holds the beveled end of the latter normally in proper position. It also serves to hold the latch out of the path of the lever when desired. This is done by slightly turning the finger-piece after the latch has been withdrawn. The advantages of this device are evident. The turret can be brought in play by a single stroke of the hand-lever; no time is wasted in tightening a clutch. No slipping can occur with this clutch, no matter how heavy the work, and there is less danger of breakage. Should the attachment break, the only repairs necessary would probably be the replacing of a broken latch, or at most a new supporting plate. The expense entailed would be so trifling as to hardly need considering. With the present arrangement, on the contrary, the entire lateral slide on which the clutch is formed has to be replaced in case of a break. Manufacturers of this lathe will find it considerably cheaper to build, and they can reduce the weight of the machine by at least ten pounds. On a machine equipped with this new device it is claimed that a mechanic can in eight hours turn out work requiring ten hours on the present lathes.

The Romantic Side of Inventions.

Three remarkable instances are known in which the Yankee boy's trick of whittling led to valuable inventions. According to a writer in the Stationary Engineer and Machinist, the elder Cunard, who was apprenticed as a lad to a Scotch shipbuilder, is said to have amused himself in whittling the hulls of vessels. Occasionally he would fit one of these with masts, sails and rigging complete. Tired of familiar types, he would experiment with new ships, and one of these it was that attracted the attention of his master, because it would not maintain its upright position in the water. Experiments were made to ballast it, in order to give it the proper trim. The clipper-like shape and graceful, long lines of the model promised great speed. Such is said to be the origin of the standard model of the Cunard and later ocean greyhounds.

Robert Livingston Stevens had grown to man's estate when he sailed from New York to Liverpool, eighty years ago. But he had not outgrown his love of whittling. In those days the passage took two months, and Stephens passed many an hour, jack-knife in one hand and a piece of wood in the other, brooding over a problem that had often worried him—how to run a railroad without stone stringers for tracks. He wanted to get an iron rail that would "hold," and would take the place of the thin strips fastened to the chair of the roadbed. Just before he reached England, his whittling revealed to him the solution of his problem, and that solution took the form of a T-rail with a broad base that could be applied direct to a solid wooden support. That T-rail is still in use on all railways of the world.

To an English machinist, Joseph Jenks, belongs the honor of having secured the first American patent. A blacksmith in Hammersmith, England, in 1643, he was a man of great renown, by reason of his inventive skill in the art of making machines. Emigrating to the Colony of Massachusetts in the fall of 1643, about the same time that Rev. John Harvard arrived, he settled in Lynn. This man Jenks cut the dies for the coining of the old colonial "pine tree" money. He also invented the first apparatus for extinguishing fires, a kind of primitive hand-pump on wheels. His application for a patent on a water-power device for mills was granted by the colonial court, and is probably the first patent on record in America. The court had jurisdiction over the Massachusetts Bay Colony, embracing nearly all of New England at that time. The limit of the monopoly was fourteen years, and the court retained not only power to forbid exportation, but also power to prevent exorbitant charges made upon the public. The patent was issued in this form:

"At a general Courte at Boston the 6th of the 3rd Mo. 1648. The cor't consid-inge ye necessity of raising such manufactures of engins of mils to go by water for speedy dispatch of much worke with few hands, and being sufficiently informed of ye ability of ye petition to performe such workes grant his petition (yet no other person shall set up or use any such new invention, or trade for fourteen years without ye licence of him the said Joseph Jenkes) so farr as concerns any such new invention, & so it shall be always in ye power of this co'te to restrain ye exportation of such manufactures & ye prizes of them to moderation if occasion to require."

ILLUMINATED INDIAN CLUB.

We have all doubtless noticed the effect produced by rapidly swinging a lantern in the dark. The impressions produced by the light linger on the retina of the eye, so that, instead of a single-point light, one imagines he sees a whirling stream of fire. Mr. John Creelman, of Suffern, N. Y., has invented an illuminated Indian club with which this illusion can be very pleasingly effected. The club has a hollow perforated body threaded at the lower end to receive the handle portion. Secured to the handle and adapted to enter the hollow body, is an incandescent lamp. Electricity is conducted to the lamp by means of wires passing through the handle, and connected to any suitable source of electric current. When the current is turned on, the light radiates from the numerous perforations in the club. One acquainted with Indian club exer-

**ILLUMINATED INDIAN CLUB.**

cises can give his audience a very fascinating entertainment, especially if colored lamps be used instead of the ordinary white light.

Apparatus for Preventing Collisions at Sea.

A Russian inventor, Nicolas Gherassimoff, of St. Petersburg, has devised an apparatus which is intended to prevent collisions at sea. The apparatus is operated by the use of contact devices which he calls "feelers." The feelers move in advance of the ship and at such a depth as not to be materially interfered with by the waves. They are so disposed and connected as to indicate an obstruction, stationary or floating, beneath the surface, whether in the direct course of the ship or on one or the other side. The diversion of the feelers from a straight course, due to their collision with an obstruction in their path, or to the action of such obstruction on their connecting devices, is made use of to indicate the course that the vessel is to take in order to avoid the obstruction.