

around shafting. Appalling is the list of accidents caused by the old-fashioned square-headed, protruding set screws. One human arm is worth carloads of set screws. It was the humane side of this appliance that first appealed to us; but as a mechanical device it has merits not to be despised. In the first place, it is hollow—as shown by the illustration above; and the hole is hexagonal, into which a hexagonal cranked wrench bar may be inserted for either tightening or releasing. The power on the wrench is applied equally to the entire length of screw, thus avoiding torsional strain. It is self-locking; because two screws in a hole lock one another, and the stress on thread is equalized. These life-saving set screws are made of steel; are elastic: thus providing against loosening from change of temperature; and being sealed with wax, are proof against wet and rust.

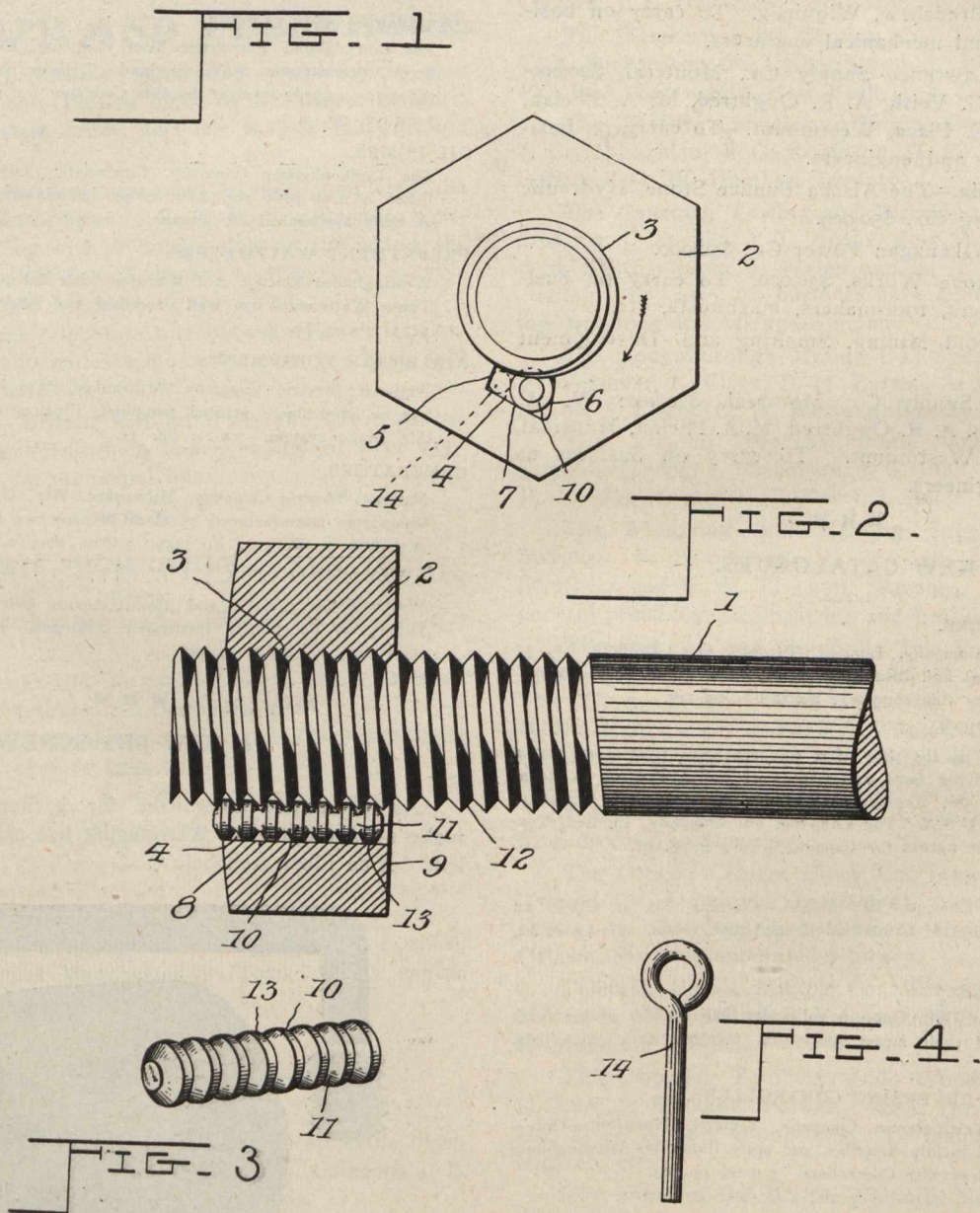


A NEW LOCK NUT.

With the exception, perhaps, of rotary motors, there have been more letters patent issued for lock nuts than for any other mechanical device. Most of these inventions can be

engages in the threads 12 of the screwed shank of the bolt. The diameter of this locking key is such, that when it occupies the enlarged portion of the recess 4, and touches face 6, the nut is free to move upon the bolt. Consequently, if the nut is turned in the direction of the arrow (Fig. 1), the locking key would naturally recede toward the enlarged portion of the recess, hence there would be no tendency to bind or lock the nut. If, however, the direction of rotation is reversed, the key will tend to move toward the contracted end 5, of the recess. But the diameter of the key is such, that movement into the contracted portion 5 is impossible, when, therefore, the nut is turned with a view of removing same from bolt shank, the locking key which tends to roll toward the contracted area, jams itself between the face 7 and the threads 12 of the bolt, and effectually prevents any further movement of the nut in this direction. The operation of releasing the nut consists in merely inserting the extremity of the wire pin (14) into the contracted portion, so as to force the locking-key to one side.

Simple though the construction of this device is, it involves—as is evident from our description—several important mechanical movements, all of interest to the student of mechanics; whilst as regards its practicability, the fact that



Mowry Safety Nut.—(Patented March 1st, 1904.)

described as mechanical toys, for very few have been of any practical value. A Canadian invention has just come to our notice, however, which seems to have in it the elements of success. This lock nut—made by the Mowry Safety Nut Co., Ltd., St. John, N.B.—we have pleasure in illustrating and describing below:—

A recess 4 is cut in the threaded bore 3 of an ordinary nut into which a v-grooved key. (Fig. 3) is inserted, and

“The Westinghouse Air Brake Co.,” the Canadian Pacific and Intercolonial Railways, have given written testimonials of its utility, is enough to commend it to Canadian Engineers.



The names of the two new C.P.R. steamers, which will be launched in October and November, are the Empress of Britain and the Empress of Ireland.