

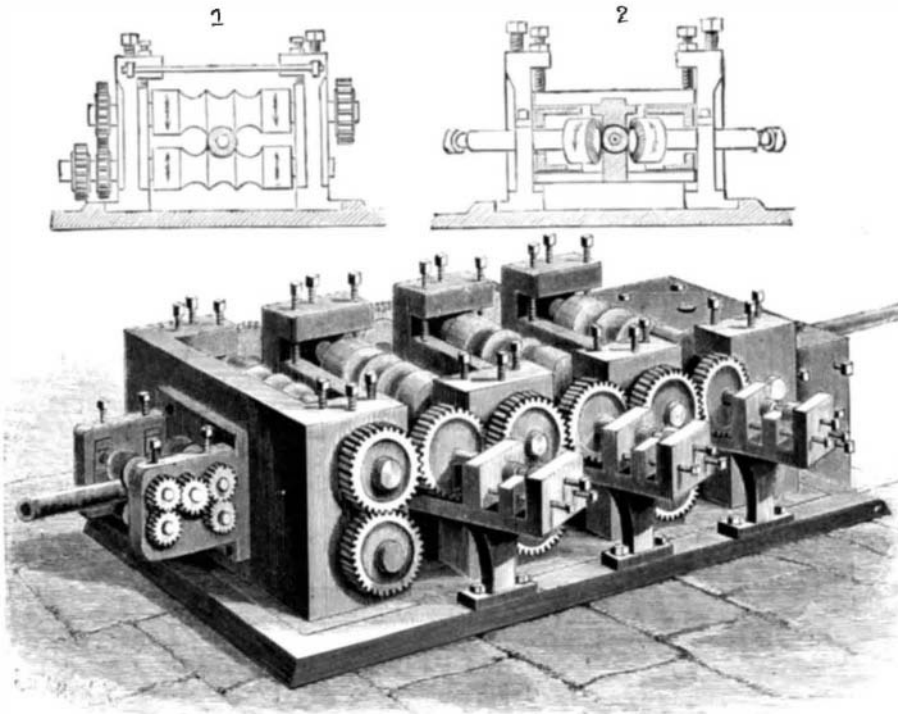
**A MACHINE TO ROLL HOLLOW RODS.**

The machine shown in the illustration is designed to produce a very durable and simple tube of a uniform size from previously heated hollow ingots, all the rolls and disks of the machine being rotated in unison, driven by suitable machines. The improvement forms the subject of a patent issued to Mr. John S. Griffin, of Roslyn, Washington. The machine has several pairs of horizontal grooved reducing rolls, and a pair of disks arranged between each two adjacent pairs of rolls, there being guides between the pairs of rolls and disks, and the grooves of the rolls diminishing somewhat in size from the front to the rear of the machine. Each pair of rolls is secured on shafts, geared together by gear wheels, and there are two pairs of feed rolls, turning in bracket bearings, secured to the first pair of standards for guiding the ingot to the first pair of reducing rolls, of which an end view is shown in Fig. 1. The arrangement of the disks between the rolls is shown in Fig. 2, the disk shafts being slightly inclined, and the ingot passing centrally between the faces of the disks, which are somewhat beveled and serrated to twist the ingot in passing. The shafts of the disks are readily movable in and out in their bracket bearings, for the adjustment of the disks in line with the grooves of the reducing rolls. Between each two adjacent pairs of rolls are longitudinally extending guides having segmental inner faces corresponding to the size of the bar or rod to be drawn, and at right angles are arranged guide blocks, having curved inner faces, the guides and guide blocks forming a complete circle between the disks and the reducing rolls. At the discharge end of the machine is arranged a pair of finishing rolls, through which the hollow rod passes after it has passed successively through the several pairs of rolls and been reduced to the proper size, the finishing rolls removing any irregularities which may have been left by the previous rolling.

**A New North Pole Expedition.**

Dr. Fridthof Nansen means to leave Europe about January, 1893, and make direct for the mouth of the Lena, in Siberia. It is possible that he may take the Kara Sea route to Siberia, but the probability is that he will go by Behring Straits. Dr. Nansen is confident that a current sets from the coast of Siberia directly across the pole to the north coast of Greenland, and that it is the continuation of this current which flows down the east coast of Greenland. Various objects have been discovered on the Greenland coast which it is believed could only have been floated from Siberia or the sea to the north of it. Dr. Nansen expects that his expedition will be away between three and four years, as the progress will be necessarily slow, and, moreover, the current is believed to oscillate. His specially constructed vessel is now nearly completed. Its net tonnage will be about 250, and Dr. Nansen is confident that it is indestructible by any amount of ice nipping. The accommodation on board will be ample for the twelve men who will compose the expedition. Provisions will be taken for six years, and care will be taken to select these in such a form as will give the greatest amount of nourishment with the least bulk. Of course it is expected that a certain amount of fresh meat will be obtainable in the form of seals and bears, if not of birds. If Dr. Nansen takes alcohol in any form, it will only be in the medicine chest, or as fuel, and even on the subject of tobacco he has notions which may not be quite agreeable to his men. Everything, of course, will be subordinated to the maintenance of the members of the

expedition in the greatest possible vigor and to the accomplishment of the great object in view. Arrangements will be made for utilizing the engine for the production of the electric light; and in the winter, when the steamer will probably be laid up, the men themselves will take the place of the engine. This will not only produce the welcome light in the midst of

**GRIFFIN'S MACHINE FOR ROLLING HOLLOW RODS OR BARS.**

the Arctic darkness, but will give the men exercise and add to the interest of a life that is apt to be depressingly monotonous. A balloon will also be taken, and the gas required to work it will be taken in storage cylinders. Tents will also be taken for use in sledging expeditions, and boats to be utilized in the unfortunate contingency of the ship having to be abandoned.

THE lava electric insulators made by the D. M. Steward Manufacturing Company, of Chattanooga, Tenn., are made from crude steatite mined in the neighborhood. An extensive plant is required for the manufacture, and the production is large, these insulators being known all over the world.

**Triple Screw War Vessels.**

The fitting of triple screws to the new French armored cruiser Dupuy de Lome, which was launched in October, 1890, and which is now being completed at Brest, and to the German protected cruiser Kaiserin Augusta, which was launched in January at Kiel, is an innovation the results of which will be watched with interest by naval architects. Each of these vessels is upward of 6,000 tons displacement. Hitherto triple screws have only been fitted to small craft, and only to very few of these. Indeed, so far as we know (says the *London Times*), the experiment has been confined to the Italian torpedo gun vessels of the Tripoli class; and, although these boats were by no means failures, their three screws conferred upon them such slight advantages that it was decided to give the improved gun vessels of the same class two screws apiece only. In the case of such large ships as the Dupuy de Lome and the Kaiserin Augusta the conditions are, of course, quite different, and it may therefore be that the anticipated advantages of triple screws will with them be fully secured. The Dupuy de Lome is of 6,297 tons displacement, 374 feet long, 52 feet broad, and having a mean draught of 23 feet 3 inches. Her triple expansion engines have a collective indicated horse power of 14,000, and will give a speed of 20 knots under forced and 17.5 knots under natural draught. The Kaiserin Augusta, lately known as Kreuser H., is of 6,052 tons displacement, and somewhat longer and narrower than the French ship. The engines will have a collective horse power of 12,000. For ordinary cruising at speeds up to 12 knots it is intended to use the middle screw only. The two outside screws, without the middle one, are anticipated to give a speed of 18 knots. The three combined should give a speed of 20 knots.

**RAIN MAKING IN INDIA.**

Among the heathenish customs observed by the natives in certain parts of India, having in view the propitiation of the gods, in the hope of obtaining rain in dry seasons, is the practice of hook swinging. This revolting performance was at one time suppressed by the English government, but its revival has of late been allowed, and its observance appears to give much satisfaction to thousands of devotees.

A recent number of the *Missionary Herald* contains a graphic description by Rev. John S. Chandler, an American missionary at Madura, of a festival which took place there in October, 1891, from which we make the abstract below. We are also indebted to the editor of the *Missionary Herald* for the use of the original photographs from which the accompanying engravings were prepared.

Rev. Dr. Chandler says:

"Having learned that the old, cruel practice of hook swinging was about to be revived after having been abolished for twenty-four years, the Madura mission directed me to memorialize the Madras government, and pray them to prohibit its revival. The government replied that they would discourage it in every way, but were not willing to absolutely prohibit it. Their discouragement amounted to nothing at all, and it came off on the 21st instant in the presence of 10,000 people. Dr. Van Allen and I went out to see it, for the sake of being able to give an authentic account of it.

There are four villages in the vicinity of Solavandan, inhabited by people of the Kellar, or Robber, caste. In each village is a family that has the right of selecting two candidates for the operation. Out of the eight thus chosen, one was selected by lot, and the lot fell on a young man of twenty-three years, thick-set and muscular and rather short of stature.

**RAIN MAKING IN INDIA—INSERTING THE HOOKS.**