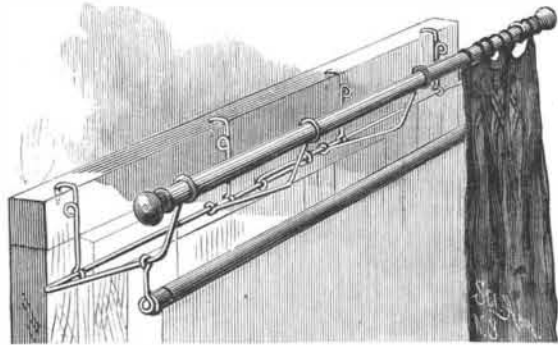


**AN IMPROVED WARDROBE HOOK AND SHADE FIXTURE.**

The invention herewith illustrated provides an article of simple and cheap construction, to be used either as a wardrobe attachment or as a curtain and shade fixture, and has been patented by Mr. James Fanning, of No. 15 Becket St., Salem, Mass. The main longitudinal wire is made in two sections, the inner ends looped around each other, so that this wire may be shortened or lengthened as desired to adapt the device for use in dif-

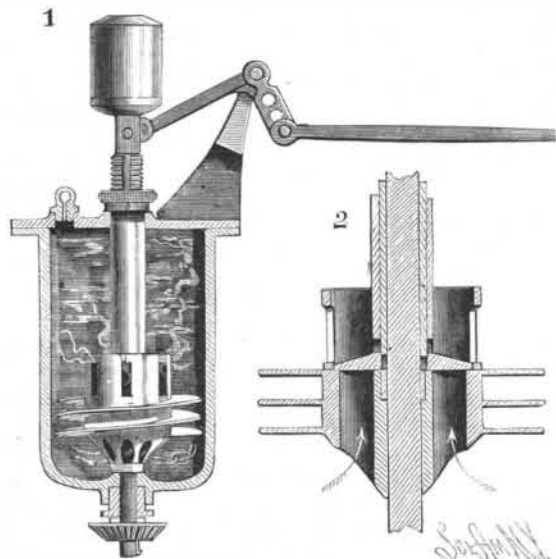


**FANNING'S WARDROBE HOOK AND SHADE FIXTURE.**

ferent positions. The hooks which engage the window casing or other woodwork have downwardly bent spurred ends, the outwardly curved hooks being adapted for supporting hats and other articles of wearing apparel, while their eyes and loops are calculated to receive and support a curtain pole and shade roller, as will be readily understood from the illustration.

**AN IMPROVED GOVERNOR.**

A governor which is designed to secure a constant given speed, however variable may be the work required of the motor, and which is applicable to heat engines, dynamos, and other machinery, is shown in the accompanying illustration, and has been patented by Mr. Alexandre Dieu, of No. 343 West Thirty-fifth Street, New York City. In a receptacle adapted to be filled with a suitable liquid, as oil, is journaled a vertical shaft carrying on its lower end a bevel gear adapted to be rotated in the usual way from a rotary part of the motor. Sliding vertically upon the shaft, but compelled to turn with it, is a governing screw upon a cylindrical core, the blades of the screw revolving in close proximity to the inner cylindrical surface of the receptacle, and there being a series of vertical passages in the screw core forming communication between that part of the interior of the receptacle below the screw and that above. Such communication may be interrupted or regulated by means of a valve plate, shown in Fig. 2, which is operated by an annular milled head upon the upper end of a sleeve which projects through the receptacle cover. Inside this sleeve a tubular rod surrounds the vertical shaft, its lower end resting in a recess in the top of the screw core, the rod being raised by and falling with the governing screw, and carrying a weight on its upper end connected by an elbow lever with a rod arranged to regulate the power supply. The revolving screw produces a constant upward circulation of the liquid, at the same time raising the screw and with it the weighted rod and the adjusting sleeve, with its valve plate, the governing action being dependent upon the speed of rotation of the screw and the extent of the opening of the vertical passages in the screw core. On varying the latter, by means of the adjusting sleeve, the re-



**DIEU'S SPEED GOVERNOR.**

action upon the screw can be varied so as to regulate the point of equilibrium between such reaction and the weighted screw system, to increase or decrease the speed at will without destroying its constancy.

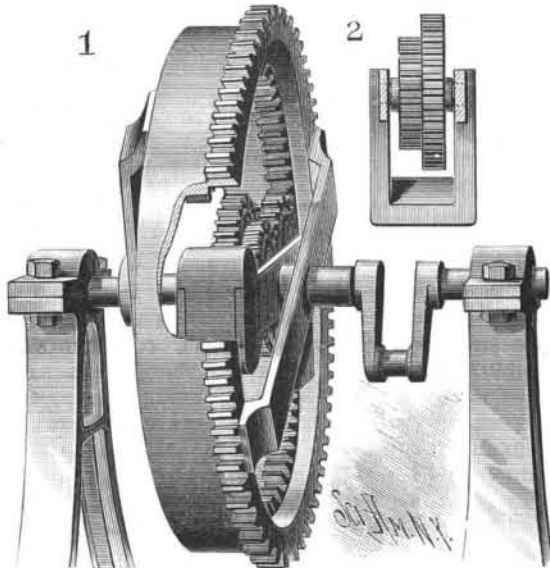
SIR WILLIAM ARMSTRONG'S new gun to resist torpedo attacks is a thirty-pounder, and develops a muzzle velocity of 1,900 feet per second.

**Eighth Annual Convention of the Photographers' Association of America.**

The annual convention of the above association is to be held at Chicago, Ill. The period of the meeting is from August 9 to August 11. The meeting will be under the presidency of Mr. G. Cramer, of St. Louis, so well known to all dry plate workers. The society, as its name indicates, is open to all workers in the art, whether professional or amateur. The convention is to be held in the Exposition building, situated on the shores of and overlooking the lake. The plan of the meeting provides for the exhibition of photographs and appliances. Numerous prizes are offered; many are presented by manufacturers for the best work done with their specialties. The rules as to the display and labeling of exhibits are so well conceived as to avoid the possibility of any undue prominence being given to any exhibitors. Thus pictures to be exhibited in the art hall are not to have any marks indicating what paper, lenses, or plates were used in their production. Pictures conflicting with this and other similar rules may, however, be exhibited in the stock dealers' department. As the professional as well as amateur photographers take part in this convention, a most valuable and interesting series of exhibits is assured.

**AN IMPROVED GEARING FOR TRANSMITTING POWER.**

An effective and economical means of transmitting power is shown in the accompanying illustration, and has been patented by Mr. John Ljung, of Nelson, Minn. On a shaft carrying a U-shaped crank arm is secured a small gear wheel, which meshes into an intermediate gear wheel secured to a shaft having its bearing in a counterbalanced frame, which turns loosely on the crank arm shaft. The intermediate gear wheel meshes into an internal gear on the large transmitting wheel, which is connected either by belt passing over the wide



**LJUNG'S GEARING.**

portion of its rim, or by the gear on one outer edge, with the machinery to be driven. Fig. 2 shows sectional end elevation of the swinging frame and intermediate gear wheel, the shaft carrying the gear wheel of the counterbalanced frame carrying also another gear wheel, which meshes into a corresponding gear wheel upon the crank-arm shaft.

**Effect of Heat upon the Strength of Metals.**

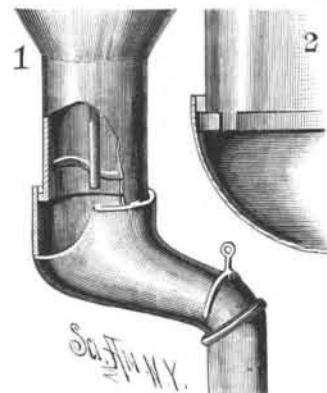
A series of interesting experiments has been conducted in Portsmouth Dockyard for the purpose of ascertaining the extent to which different gun metal compositions, and iron and steel, are affected as regards their strength and ductility by being heated to various temperatures not exceeding those to which they may at any time be exposed as parts of machines and structures. It has occurred to most engineers to observe instances of damage due to the overheating of bearings, etc., which have indicated that certain changes had taken place in the metals exhibiting this phenomena. In some gas making processes, moreover, gun metal and iron fittings are required to be exposed, while under pressure, to hot gases and superheated steam; and it is important to know the effect of this condition upon the strength of the materials in question. The Portsmouth experiments (the results of which are detailed in *Industries*) dealt with temperatures advancing by steps of 50° from the atmospheric to 500° Fah. The method of heating the specimens was by an oil bath, and every care was taken to complete the tests before the specimens lost their heat.

The result of the experiments went to show that with all bronzes there is a regular, but not serious, decrease of strength and ductility up to a certain point, which depends to some extent upon the composition of the bronze, beyond which the strength suddenly drops to about one-half, and the ductility vanishes. This critical point for ordinary gun metals is between 300° and 400° Fah. Phosphor-bronze preserves two-thirds of its strength and one-third of its ductility up to 500° Fah.; and Muntz metal and pure copper are also fairly satisfactory in these respects. Wrought iron increases in

strength up to 500° Fah., but loses in ductility up to 300° Fah.; after which an improvement begins, and lasts up to 500°. It is more ductile at atmospheric temperatures than when warmed. The strength of open-hearth steel is not affected by warming to 500° Fah., but its ductility is reduced by one-half.

**A SACK-FILLING SPOUT FOR FLOUR PACKERS.**

An improved means of conveying flour from the auger tube to the sack is shown in the accompanying illustration, and has been patented by Mr. Ossian A. C. Conant, of Terre Haute, Ind.



**CONANT'S FLOUR PACKER.**

The bent tube, intended for attachment to the auger tube, is provided with lugs, which pass through apertures formed in the lower binding hoop of the auger tube, as shown in Fig. 2, and to the lower end of the bent tube there is secured a flexible tube of sacking. A slide or cut is arranged in the bent tube to intercept the flow of flour, which is otherwise continuously forced down by the auger within the vertical tube.

**A Garden Barometer.**

One of the simplest of barometers is a spider's web. When there is a prospect of rain or wind, the spider shortens the filaments from which its web is suspended and leaves things in this state as long as the weather is variable. If the insect elongates its threads, it is a sign of fine, calm weather, the duration of which may be judged of by the length to which the threads are let out. If the spider remains inactive, it is a sign of rain; but if, on the contrary, it keeps at work during a rain, the latter will not last long, and will be followed by fine weather. Other observations have taught that the spider makes changes in its web every twenty-four hours, and that if such changes are made in the evening, just before sunset, the night will be clear and beautiful.—*La Nature*.

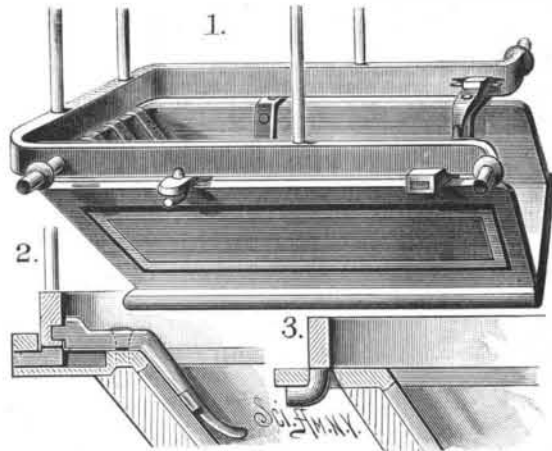
**Railroad Horses.**

English railroads do the major portion of their own carting, collecting and delivering freight at the freighters' doors. One of the largest companies, the Midland, have in constant employment no fewer than 3,200 horses; and of these 1,000 are located in London.

Some of these horses are, however, employed in switching cars, at which business a heavy horse weighing about 2,000 lb. can do good service. They soon become very expert, and start the car by standing with the trace chain slack, and then, without moving their feet, throw their shoulders forward, when their weight starts the car. They also learn to judge when the car has acquired sufficient speed, and step aside without a word of command, letting the cars come gently together.

**ATTACHMENT FOR TOP RAIL OF VEHICLE SEAT.**

A means of attaching the top rail of a vehicle seat without the use of bolts or nuts is shown in the accompanying illustration, and has been patented by Mr. John W. Yous, of Mound City, Missouri. Metal straps secured to the back of the seat, and projecting from its top, are adapted to receive rearwardly projecting hooks formed on the top rail, as shown in Fig. 3. To the ends of the seat are attached straps having sockets with lateral openings for receiving right-angled fingers



**YOUS' VEHICLE SEAT.**

projecting downward and outward from the forward ends of the top rail, as shown in Fig. 2, these straps having pivoted latches, adapted to press against the inner side of the top rail, which is readily engaged with the hooks at the back and sprung into place and secured by the latch at the side. By this means the top rail is securely held, and may be attached or removed without the use of wrenches or other tools.