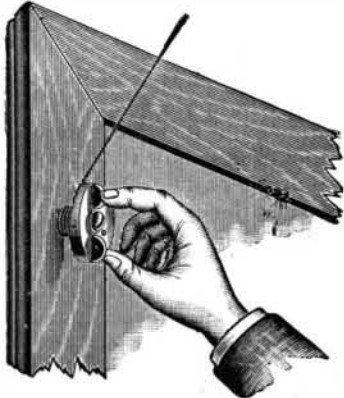


AN ADJUSTABLE PICTURE HANGER.

The device shown in the illustration can be readily attached to any picture frame, and renders the task of hanging and adjusting pictures to the proper height a comparatively easy one. The hanger is permanently attached to the frame by a screw, and the adjustment for height of picture is then effected by simply turning the hanger to the right or left, the picture wire being attached to the hanger, and being wound up or unwound as desired. To hang heavy pictures, where a separate wire is required on each side, two of these hangers are preferably used, and the leveling of the

**BILLINGS' PICTURE HANGER.**

picture is then easily effected. This improved hanger is manufactured by H. E. Billings, of Hartford, Conn.

Varnishing Oil Paintings.

The chief use of varnish when applied to oil paintings is to preserve and bring out the full value of the colors used, and to produce a uniform surface. Unvarnished, the picture appears dead in one part and glossy in another. It is a mistake to apply a thick coating of varnish to a painting, as all varnish oxidizes and darkens in color with age, consequently the thicker the coat of varnish the sooner it becomes discolored, and in such cases some of the most delicate of the tints are obscured. Therefore it is best to use the varnish thin, for while it protects the work from dirt and foul air, it also fulfills all the other conditions required. Of course, the above remarks apply equally to the finer examples of decorative work. For oil paintings mastic varnish is universally used, a drop or two of refined linseed oil added to the varnish prevents it cracking; it admits of being used then without reducing its body. The reason why varnish cracks, as it often does, is a debatable question among experts. Apart from the question of good or badly made varnish, there are several causes which produce the same effect. The fact is that both pictures and decorative work are varnished before the paint underneath has had time to become hard; the result being that the varnish being of a highly elastic nature contracts, as it dries, and the paint not being sufficiently hardened gives way, and at once a crack-making process begins, which can only end in the work becoming one mass of cracks. Oil paintings and decorative panel work crack because the getting up of the ground work, whether on canvas or panel, has been improperly done; from this cause alone a large percentage of otherwise good work is ruined. The result is the same in many cases whether the work has been got up in quick color or in distemper.

The Constitution of the Royal Ordnance Factories at Woolwich.

The autumn meeting of the Iron and Steel Institute was opened on the 6th of October, at the Literary Institute of the Royal Arsenal, Woolwich.

The first paper read was by Dr. W. Anderson, Director-General of Ordnance Factories. He stated that the Royal Ordnance Factories were founded upon the principle that means should be provided for the production of every kind of warlike material in a limited degree, and without discouraging the same manufactures by private establishments. The usefulness of the Royal Factories lies mainly in the facilities they offer for testing the value of warlike appliances, for the repairs of service stores, and for the prevention of "rings" among the few firms who manufacture war material. In addition, the special experience of the managers and foremen, and the abundant means available, have enabled the Ordnance Factories to supply stores which private firms are unable to produce in reasonable time.

The Royal Ordnance Factories are six in number. Three of these are situated at the Arsenal at Woolwich. Common to all the factories is the Department of Building Works, which at Woolwich has charge of twenty miles of railway, forty locomotives, and corresponding rolling stock, the hydraulic establishment, the electric light installation, the gas manufacture, the telegraph and telephone lines, etc. The Ordnance Factories differ from private factories. There is no floating capital beyond some £400,000 invested in stores; consequently, the customers for whom the work is done have to provide the money when they

give the orders. The higher appointments are governed by the War Office rules. After describing the method of correspondence, the form of orders, and the preparation of estimates, the author stated that the capital account stood at £557,945 for buildings and £718,949 for machinery. The larger part of the work is done by the piece, but sub-letting is not permitted. The wages of the workpeople is in accord with outside trade prices. No special charge is made for machines and tools. The stores are kept with a care and accuracy not found in private establishments. The number of hands employed in the Ordnance Factories is 17,000, of which 13,000 are at Woolwich. Women are not employed. The average wages earned is 32s. (\$8) per week per employe. In the financial year 1889-1890, the amount of completed work issued amounted to £2,259,126, the expenditure on all services was £2,590,053, of which wages were £1,339,045, and materials £1,055,224.

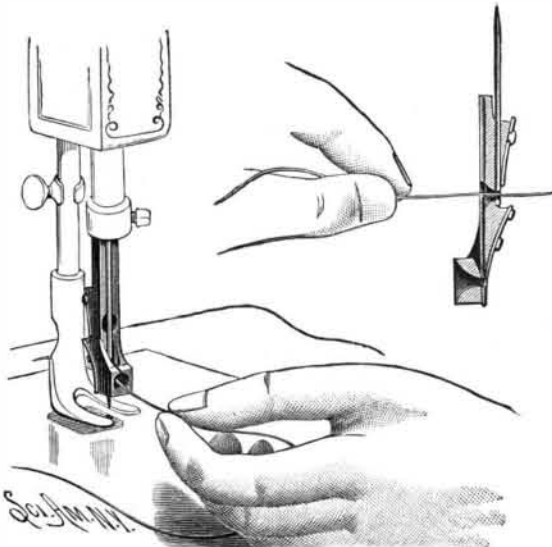
Dr. Anderson, in describing the official method of binding the correspondence on any one subject together by the "much derided red tape," caused some amusement by exhibiting samples of the official correspondence paper, red tape, and wrappers. A green wrapper in connection with a bundle of correspondence indicated that the subject matter was of urgent importance, and should be immediately dealt with.

A NEW ELECTRIC LIGHT SUPPORT.

This device is especially designed for use around work benches and in machine shops, etc., rendering the light adjustable to any desired position. The extensible lamp-supporting arm is hung by a ball and socket joint from the ceiling, there being a set-screw for regulating the friction on the ball at the upper end of the first rod, to which is adjustably attached a rod upon which the lamp-supporting and current-conducting wire is secured. The adjustable rod has its bearings in screw eyes set in the sides of the upper rod, and is pressed against the bearings by an adjustable spring. This device is equally well adapted for use on wall brackets. It is manufactured by Messrs. R. Hollings & Co., of No. 545 Washington Street, Boston, Mass.

**A MACHINE AND HAND NEEDLE THREADER.**

The device shown in the illustration is extremely simple and inexpensive, and can be readily attached to any sewing machine needle in place in the needle bar, as shown in one of the views, to facilitate threading the needle. It is also adapted for use in threading a hand needle, as shown in the other figure. The device is made of the proper size to allow it to be attached to the needle just below the needle bar, and is adapted for use on any style of machine. A groove extends down the front of the body, on the lower end of which is a thickened transverse portion having a funnel-shaped opening at its front opposite the eye of the needle when the threader is placed in position. The funnel opening has a slit in its upper side to permit of the removal of the thread, and a flat spring attached to an inclined back portion of the threader holds it in place on the needle. In the hand threader, the groove to receive the needle is in the back of the body, the

**SENSBY'S NEEDLE THREADER.**

needle being held in place before the thread opening by a flat spring, as in the case of the machine needle, while the base of the groove is made with an inclined portion which permits of the ready adjustment of fine or coarse needles before the needle opening.

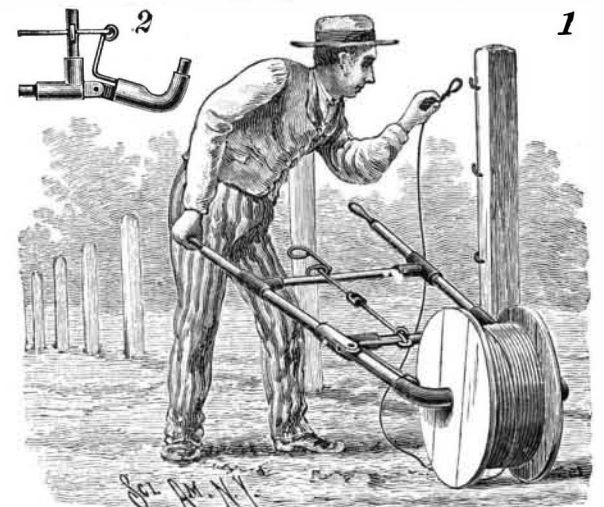
Further particulars relative to this invention may be obtained of Mr. W. P. Slensby, No. 7 Warren Street, N. Y. City.

The Basking Shark.

The "basking shark" (*Selache maxima*, L.) is apparently no very uncommon visitor in New Zealand waters. In the new volume of the Transactions and Proceedings of the New Zealand Institute, Mr. T. F. Cheeseman, Curator of the Auckland Museum, describes a specimen, over thirty-four feet long, which was stranded near the mouth of the Wade River. Mr. R. H. Shakspeare, of Whangaparaoa, who saw the specimen very shortly after it was stranded, has informed Mr. Cheeseman that every spring several individuals of the same species can be seen near the entrance of the Wade River, and along the shores of Whangaparaoa Peninsula. He believes that they visit these localities in search of their food, which he thinks is composed of small *Medusa* and other pelagic organisms. They can be easily recognized from their habit of swimming on the surface of the water, a portion of the back and the huge dorsal fin being usually exposed. It is from this circumstance, taken with the fact that their motions are very slow and sluggish, that they have received the name of the "basking shark." They are easily approached and harpooned, and on the west coast of Ireland as many as five hundred have been taken in a single season. The liver often weighs as much as two tons, yielding six to eight barrels of oil.

A TRUNDLER FOR SPOOLED WIRE.

The illustration shows a strong, light, and convenient device for distributing fence and telegraph wire, etc., coiled on flanged spools, along the lines where fences are to be made or electric conductors are to be put up. It has been patented by Mr. Cullen R. Smith, of Prairie Lea, Tex. The frame of the device has at its forward end curved L's, one of which has a hinged connection to the side bar, as fully shown in Fig. 2, these L's terminating in aligning pintles adapted to be axially inserted in perforations in the sides of the spool

**SMITH'S TRUNDLER FOR SPOOLED WIRE.**

drum. Attached to the hinged is a bent arm connected by a loop or eye with a pusher rod sliding in staples on cross bars of the frame, the opposite end of the rod being bent to form a locking shoulder and handle, while its central portion is intersected by a turnbuckle. By pushing this rod forward one of the pintles is swung outward, as shown in Fig. 2, to permit of attaching the device to a spool, when the rod is drawn back and its shoulder engaged with one leg of the staple, whereby the device is held in locked position upon the spool. To bring tension upon the wire as laid, the turnbuckle is turned to shorten the pusher rod, the shoulders on the pintles thus being pressed inward to cause friction on the spool ends. The device may also be utilized to transfer wire rolls from one point to another, and also for rolling barrels or casks, the ends of the pintles, in the latter case, being slightly pointed, to engage the opposite heads of the vessels.

To Color Iron and Steel a Dead Black.

A new blacking fluid has been invented by M. Mazure. According to *Cosmos*, this liquid has the following formula:

Bismuth chloride.....	1 part.
Mercury bichloride.....	2 "
Copper chloride.....	1 "
Hydrochloric acid.....	6 "
Alcohol.....	5 "
Water.....	50 "

Mix. To use this fluid successfully, the article to be blacked or bronzed must be clean and free from grease. It may be applied with a brush or swab, or, better still, the object may be dipped into it. Let the liquid dry on the metal, and then place the latter into boiling water, and maintain the temperature for half an hour. If the color is then not as dark as desired, repeat the operation. The editor of the *National Druggist* finds it to work beautifully. After getting the desired color, the latter is fixed and much improved by placing for a few minutes in a bath of boiling oil, or by coating the surface with oil and heating the object until the oil is driven off.