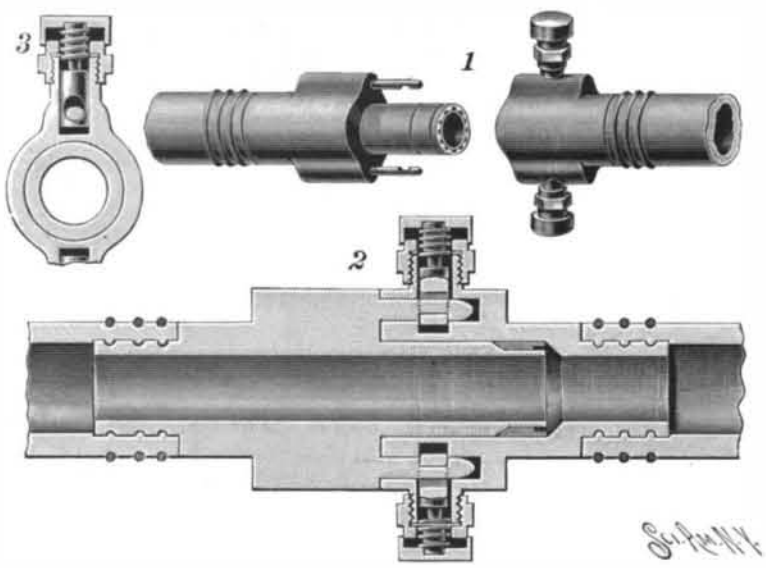
AN AUTOMATIC HOSE COUPLING.

The illustration represents a hose coupling by means of which the sections of hose are automatically locked when brought together, the coupling being readily and conveniently effected even while the pressure remains on the hose. The device may also be used with a nozzle, enabling the hose to be broken at any joint and the nozzle put on as quickly as a coupling would ordinarily be effected. The improvement has been patented by Thomas A. Oothouse and Albert E. Bohlen, of Mount Olive, Ill. Fig. 1 is an exterior view of two sections of the coupling uncoupled, Fig. 2 being a sectional view of the parts coupled, and Fig. 3 being a transverse section. In an offset at each side of the head of the female coupler section is a longitudinal bore and annular chamber, each chamber being extended through the offset and having an exteriorly threaded thimble. Sliding in each chamber is a spring-pressed latch, and the outer end of each latch shank is provided with a cap, the springs normally carrying the bottom portions of the latches outward to position to interrupt the bore. The male section of the coupling has a central tubular tongue adapted to enter the body of the female section, and projecting studs adapted to enter the longitudinal bores in the sides of the offset, there being in the studs latch-receiving recesses which engage with the spring-pressed latches when the parts are moved into engagement, thus securely locking the two sections together. To effect an uncoupling, it is only necessary to press inward upon the two caps, by which the latches are released from engagement with the studs. To prevent the caps being unintentionally pressed inward, a nut is screwed outward on the exteriorly threaded thimble to engage with each cap.



OOTHOUSE AND BOHLEN'S HOSE COUPLING.

Queen Victoria's Real Estate.

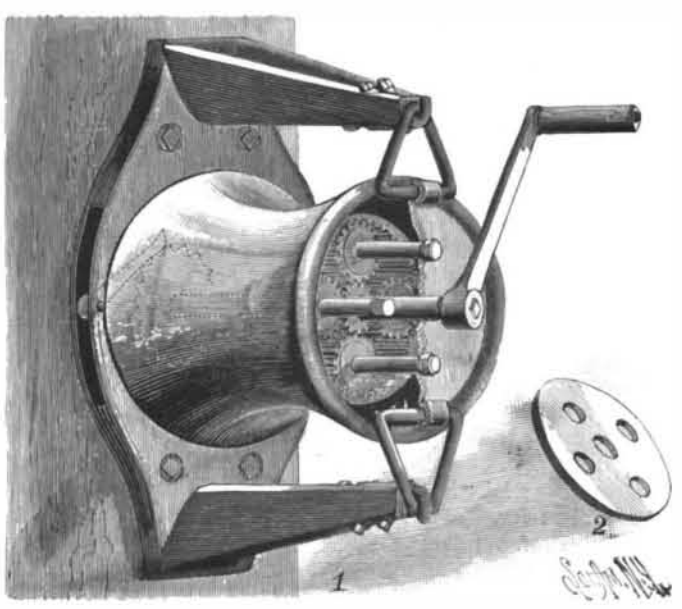
The announcement that Queen Victoria is to leave, by will, Osborne House to one daughter, the lease of Abergeldie House to another, and Balmoral, the royal residence in the Highlands, to the Duke of Connaught, recalls the fact that the man who would devour this particular widow's houses must make an uncommonly full meal. It was discovered a few years since that the Queen owned six hundred houses in various parts of England, not royal residences, but rent-yielding property, and that about six thousand houses had been built by crown lessees on building leaseholds held of the Queen. She then had also rents from markets and tolls from ferries, besides the proceeds of mines and other works upon her property or the crown property. She had large estates in Yorkshire, Oxfordshire, and Berks. valuable lands in the Isle of Man and in Alderney, Scotland, Ireland and Wales. Of the New Forest there are two thousand acres of absolute and sixty-three acres of contingent crown property. Her Majesty enjoys income from the Forest of Dean, from several other forests, and from rich properties in and about London. Osborne, on the Isle of Wight, and Balmoral, in the Highlands, are the private property of the Queen, and are maintained out of her own income. But she has the use of a few royal palaces besides, and these are maintained by the nation at an annnal expenditure ranging from $2,500 to $50.000. The Queen is in the occupancy of Buckingham Palace. Windsor Castle, the White Lodge at Richmond Park, and part of St. James's Palace. The remainder of the last named palace is occupied by other members of the royal family. Other royal palaces maintained as such, although not in the occupancy of the Queen, are Kensington Palace, Hampton Court—which, according to a recent estimate based on the statistics of eight or ten years, costs the nation on the average over $70,000 a year--Kew Palace, Pembroke Lodge, the Thatched Cottage and Sheen Cottage, Richmond Park, Bushy House in Bushy Park, and Holyrood Palace. When she visits the Continent, she has one great house or another, with whatever repairs and refurnishing are necessary to fit it for a temporary royal occupant, although for all this she pays out of her own income. Bagshot House, Gloucester House and Clarence House are palatial dwellings, occupied by various members of the royal family. The Queen has four rather old-fashioned yachts, on which she makes her sea journeys, although the oldest of them probably is used seldom or never. The four cost originally about $1,375,000.—Boston Transcript.

Longevity and Activity.

Great men usually carry their full mental vigor and activity into old age. M. Chevreul, M. De Lesseps, Gladstone and Bismarck are evidences of this anthropological fact. Pius IX, although living in tempestuous times, reached a great age in full possession of all his faculties, and the dramatist Crebillon composed his last dramatic piece at 94, while Michel Angelo was still composing his great canvases at 98, and Titian at 90 still painted with all the vigor of his earlier years. The Austrian General Melas was still in the saddle and active at 89, and would have probably won Marengo but for the inopportune arrival of Desaix. The Venetian Doge Henry Dandolo, born at the beginning of the eleventh century, who lost his eyesight when a young man while on an embassy to Constantinople, through the treachery of the Greek Emperor Manuel, was nevertheless subsequently raised to the highest office in the republic, managed successfully to conduct various wars, and at the advanced age of 83, in alliance with the French, besieged and captured Constantinople. Fontenelle was as gay-spirited at 98 as in his fortieth year, and the philosopher Newton worked away at his tasks at the age of 83 with the same ardor that animated his physical prime. Cornaro was as happy at 90 as at 50, and in far better health at the age of 95 than he had enjoyed at 30. These cases all tend to show the value and benefits to be derived from an actively cultivated brain in making a long life one of comfort and of usefulness to its owner. The brain and spirits need never grow old, even if our bodies will insist on getting rickety and in falling by the wayside, but an abstemious life will even drag that old body along to centenarian limits in a tolerable state of preservation and usefulness. The foregoing list can be lengthened out with an indefinite number of names, but it is sufficiently long to show what good spirits and an active brain will do to lighten up the weight of old age. When we contemplate the Doge Dandolo at 83 animating his troops from the deck of his galley, and the brave old blind King of Bohemia falling in the thickest of the fray at Crecy, it would seem as if there was no excuse for either physical, mental or moral decrepitude short of the age of fourscore and ten.—National Popular Review.

AN IMPROVED WINCH.

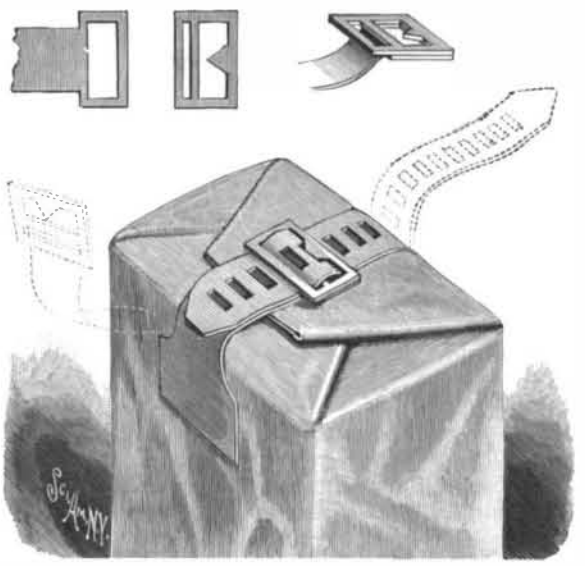
The illustration represents a winch which may be placed and operated in any position, and especially designed for use on shipboard in hauling braces, halyards, etc., as it may be attached to the railing, bulwark or mast, or other convenient support. In the back plate is a central interior chamber, and on its front face are top and bottom horizontal arms in whose outer ends are bolt cavities, the outer ends of the bolts being bent to form hook arms. The drum or barrel is toothed centrally on its inner surface, and around the central shaft, journaled in the back plate, are four stationary shafts, screwed or otherwise firmly secured at their rear ends in the back plate. On these shafts are collars at the rear side of the teeth on the central inner surface of the drum, and on the collars rests a rear guide plate having openings to receive all the shafts, as shown in Fig. 2, there being a similar front guide plate, and adjustable sleeves being fitted to all the shafts to engage the outer face of the forward guide plate. The central shaft has a pinion adapted to engage pinions loosely mounted on the stationary shafts, the latter pinions engaging the teeth on the inner face of the drum, to impart a rotary motion thereto. The improvement has been patented by Harry Ekrem, of San Pedro, Cal. The guide plates, with the collars and sleeves, prevent end movement of the shafts, and the front plate is held in position by top and bottom yokes or links, the plate being readily removable by turning the hook ends of the bolts. The central shaft is prevented from unwinding by a ratchet wheel engaged by a gravity pawl in the chamber in the back plate, as indicated by the dotted lines. This winch may be readily taken apart and put together, and is designed to enable one man to develop great power in pulling on a rope, chain or cable.



EKREM'S WINCH.

AN IMPROVED BAG TIE.

The illustration represents a tie especially adapted for use in connection with paper bags, and consisting of two straps, each designed to be secured to the bag, one of the straps carrying a peculiarly constructed buckle with which the other strap locks. A patent has been granted for this improvement to Walter P. Scofield, of Cedar Key, Fla. One of the straps has an opening in its enlarged free end, where a buckle is attached having two transverse openings, as shown in the small views, the buckle being preferably secured by gluing where the device is used on paper bags. Projecting into one of the transverse openings of the buckle is a tongue adapted to engage one of several slots in the other strap, thus locking the bag, as shown in full lines in the large view, the dotted lines indicating the position of the straps before they are locked together to tie the bag.



SCOFIELD'S BAG TIE.

Speed of Atlantic Passenger Ships.

Following is a list of the principal Atlantic passenger ships, with their best average time on voyages during 1895:

Name of steamer.	Best average time in knots.	Name of steamer.	Best average time in knots.
Lucania	22·01	St. Paul	19·45
Campania	21·82	St. Louis	19·56
Teutonic	20·35	Columbia	19·18
Majestic	20·41	Paris	19·87
Etruria	19·67	Augusta Victoria	18·40
Umbria	19·56	Havel	18·78
Germanic	16·94	Lahn	18·36
Servia	16·80	Spree	18·65
Aurania	17·00	Aller	17·74
Britannic	16·00	Trave	17·46
Fuerst Bismarck	20·14	Ems	17·01
New York	20·26	Saale	17·46
Normannia	20·23	Fulda	16·66

—Marine Review.

Not a Bad Idea.

A gentleman once asked a lawyer what he would do provided he had loaned a man $500, and the man had left the country without sending any acknowledgment.

"Why, that's simple: just write him to send an acknowledgment for the $5,000 you lent him, and he will doubtless reply stating it was only $500. That will suffice for a receipt and you can proceed against him if necessary."

Science Notes.

The Franklin Institute proposes to award the John Scott legacy medal and premium to the following parties for meritorious discoveries and inventions: To Lieut. George O. Squier and Albert C. Crehore, for their polarizing photo-chronograph; Joseph Richards, for his solder for aluminum; A. L. Johnston, for his bonding joint for electric railways.

MM. D'Arsonval and Charlan have proved by experiments that currents of high frequency attenuate the bacterial toxines. Toxines thus attenuated increase the resistance to infection of animals into which they have been injected.

Sir W. M. Conway proposes to take a party to Spitzbergen, in the summer of 1896, for the purpose of exploring the interior. He expects to be accompanied by several scientific experts, so that the journey promises to be very important from a scientific point of view. The island is penetrated with fjords and no part is very far from the sea. The explorers will therefore cross from fjord to fjord.

Prof. Alexander Agassiz has determined to undertake an expedition, the object of which is to investigate the many subjects connected with the great barrier reef of Australia. He will be accompanied by a trained staff of artists and assistants, and Mr. W. Ward, an experienced collector, will also go with him.

The New England Association of Opticians are raising funds to build a memorial to be erected to Robert B. Tolles, who lies buried at Mount Auburn, Cambridge, Mass. In their opinion, a man so honored as an optician deserves some remembrance.

M. Henri Moissan has produced carbide of uranium, and says that when formed with excess of carbon in the electric furnace the carbide is a definite and crystallized one, corresponding to the formula U_2C_3 (U= 240). Cold water decomposes it, a third of the carbon being given off in the form of a mixture of gaseous hydrocarbons, of which three-quarters are methane and very little acetylene. Hydrogen is also present. The remainder of the carbon produces a mixture of liquid and solid carbides. It looks as though this reaction might prove a typical one for the carbides of several elements, says the Electrical Engineer.

Investigations made by Dr. Carl Müller, and reported in Himmel und Erde, show that lightning prefers to strike certain kinds of trees. Under the direction of the Lippe-Detmold Department of Forestry, statistics were gathered showing that in eleven years lightning struck fifty-six oaks, three or four pines, twenty firs, but not a single beech tree, although seven-tenths of the trees were beech. It would seem, then, that one is safer in a storm under a beech tree than under any other kind.

The serum for snake bite sent from the Pasteur laboratory to the government bacteriologist at Agra has been used with success in the case of a native bitten by a cobra. A number of sheep that were bitten have been treated and saved. The report of the Pasteur Institute at Paris for last year shows that the number of persons treated were some 1,532, of whom only 5 died. Of these patients, 1,263 came from France and 93 from England and India.

The United States consul at Warsaw, Poland, reports that a second hygienic exposition, similar to the first, held in 1887, will take place at Warsaw. The date of the opening of the exposition will be May 15. It will continue for one month. The following list of the nine committees now at work will give an idea of the scope of the exposition: (1) physico-chemical; (2) parasital; (3) architectural; (4) pedagogical; (5) on hygiene of industry; (6) on hospitals; (7) pharmaceutical; (8) statistical; (9) public hygiene. Each of the above committees is composed of at least three members, selected from among the doctors of medicine, professors, engineers, and other specialists, all under the presidency of the general committee.

Prof. Roentgen, of Wurzburg, has been created a baron by Prince Ludwig of Bavaria, in recognition of his services to science in the discovery of the new radiation.

Perhaps there is nothing that so clearly explains the intense ignorance of the Turks as the fact that the censors of Turkey prohibit the importation of all educational books, this state of affairs being brought about by the discovery in one book of the formula H_2O, which the wise men of the court interpreted to mean: "Hamid II is naught—a cipher—a nobody.—Digest of Physical Tests.

A Berlin physician has devised what seems to be a rather novel method of imitating mother's milk, says the Medical Record. Cow's milk is fermented by means of rennet, and the whey thus obtained is carefully sterilized and then enriched, as required by different individuals, by the addition of cream.

A memorial tablet of bronze, to the late Prof. George H. Williams, will be placed in the Williams memorial room of the geological laboratory of the Johns Hopkins University. This room contains the collections made by Prof. Williams.

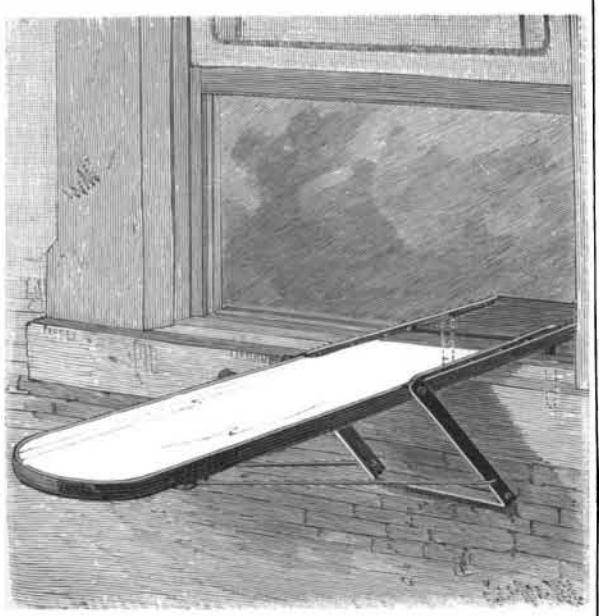
At a recent meeting of the Physical Society, Sir David Salomons showed some very interesting experiments with incandescent lamps. A large electro-magnet was excited by means of a continuous current while an alternating current was passed through an incandescent lamp. On bringing the lamp near the magnet the filament was set in vibration, which was sufficient to break it. The number and position of the nodes formed in the vibrating filament are found to be independent of the natural period of the filament, but depend on the frequency of the alternating current.

There are now six sanitariums in Germany at which consumptives are treated by constant exposure to cold air at a low temperature. Currents of cold air are allowed to pass through the bedrooms at night, and during the day as much of the time as possible is passed in the open air. It is said that the pure, cold air quiets the cough, lowers the temperature, arrests night sweats, improves the appetite, and modifies or arrests the disease.

Mr. Edwin Wheeler, a naturalist of Clifton, Bristol, has just presented to the Natural History Museum the results of the labor of years, in the shape of 2,449 water color drawings from nature, and species of fungi to be found in Great Britain. The drawings make twelve bulky volumes.

A SERVICEABLE PLATFORM.

The illustration represents a simple construction adapted to conveniently support a person when painting or washing windows, and similar occupations, and which may also be employed in constructing scaffolds and other supports inside and outside of a building. It has been patented by F. H. Reeder and A. R. Saxton, of 665 Union Street, West Philadelphia, Pa. On the under side of the outer end of the platform is pivoted a brace connected with a yoke adapted to abut against the wall of the building, and on the inner end of the platform is adjustably held a key adapted to engage the



REEDER AND SAXTON'S PLATFORM.

inside of the wall in a room, the inner vertical portions of the key being covered with leather or other soft material to prevent injury to the walls or woodwork. The key has a U-shaped middle portion adapted to rest on top of the platform, and its sides abut against pins projecting from the sides of the platform, the outer ends of the pins being secured to a bail which embraces the inner end of the platform. The key locks the platform in place, so that it will readily support a person on its extended portion.

The Electrical Resistance of Bismuth.

Continuing their researches on the electrical properties of the metals at very low temperatures, Profs. Dewar and Fleming have recently investigated those of bismuth, and in the Philosophical Magazine, 1895 (5), 40, 303-311, they publish an interesting paper on the electrical resistance of this metal. The substance of the paper is as follows: The resistance was determined in the case of three samples of bismuth: (1) commercial pure bismuth (A); (2 and 3) pure samples specially prepared (B and C), the temperature varying from 95° to 235° (platinum degrees). In each case the specific resistance at first diminishes, a minimum being reached at 50° pt. (B), —83° pt. (C), and 0° (A); after this the resistance increased, the temperature coefficient being negative. In the case of the commercial bismuth (A), a maximum was reached at about —200° pt., after which the temperature coefficient was again positive; but in the two pure samples no such maximum occurred, neither was there any indication that a maximum would be reached. It is noticeable that the change in the temperature coefficient of the pure bismuth (especially C) occurs at about the same temperature as that of the discontinuity in the thermo-electric power. It is also found that the effect of a magnetic field on the resistance of the metal is very much increased by reduction of temperature, an increase of 5 per cent due to a magnetic field reaching 25 per cent at the temperature of liquid air.

Cycling Notes.

The Brooklyn Bridge is now free to wheelmen, the toll of one cent having been abolished.

Count Leo Tolstoi, the Russian novelist, now rides the wheel, much to the astonishment of the peasants on his estate.

Silk for tires has been produced by a French tire maker. The silk is used instead of cotton fabric in the special racing tire.

One of the newest uses to which the bicycle has been put is its introduction as an aid to the life savers in patroling the beach.

It is said that all machines used in the French army are to be equipped with electric lights capable of being turned on or off at will.

The Patent Office statistics show, says the American Wheelman, that 2,388 styles of velocipedes have been patented in the last twenty-five years.

A company producing only one form of one part of a bicycle (the jointless rim) covers two acres of ground with its works at Birmingham, England.

It is said that last year barely five hundred tandems were ridden in the United States, but this year the call for the two seated wheel has been unprecedented.

The bicycle is proving of great use to the medical profession. In many cases the sick can be thankful that the doctor has a bicycle, and can thus be at the bedside in less time than that required for harnessing a horse.

An English trades union has refused to work with men who ride to their work on bicycles, on the ground that they have an unfair advantage in being able to work longer at the shop and yet get home at the same time as those who walk.

It is said that there are in and around New York City 150 cycling clubs, with a combined membership of 80,000. The annual dues amount to about $1,900,000 and the total number of miles ridden by these members is about 35,000,000 each year.

Cycle racing was one of the most interesting of the sports of the Olympian games in Athens. There are now six cycling organizations in Greece; five of them are in Athens, where there are about 400 riders. There are said to be 1,500 in the entire country. Prince George is an enthusiastic wheelman and is president of one of the clubs. The Grecian women have also taken to cycling, and nearly 100 of the Athenians now ride wheels.

A French bicycle maker is using roller bearings in his machines, the rollers taking the place of the balls and being prevented from touching each other by a cage which revolves with them. It is said that in ball bearings there is considerable friction between the balls themselves, as the points of contact between them are necessarily revolving in opposite directions, and that so completely is friction overcome in the roller bearing that no oil need be used. Similar contrivances have been used before and have been very generally abandoned.

In some of the railroads in France a simple contrivance is used to store the wheels in the baggage compartments; it consists of a pair of tongs which grips on strips of the roof of the car. To these tongs are attached a leather covered hook by means of chains. The frame of the bicycle rests in this hook; the bicycle is also caught to the side of the car. This plan removes the wheel from the floor space of the car, so that it does not interfere with any other class of baggage. Some of the Western roads of the United States have already provided bicycle racks.

A large part of the bicycles which are transported by railroads are carried by local trains, in which passengers consist almost wholly of suburban residents who do not take with them any form of personal baggage, aside from bicycles; so it is not believed that the bill compelling bicycles to be carried the same as baggage, which will probably become a law in New York State, will work much hardship to the railroads. A railroad in the South charges for the transportation of wheels, and the wheelmen, many of whom were large shippers of freight, retaliated, so that it is said that the profits of the road were very much reduced by this action.

The manufacture of the modern bicycle presents some delicate problems in mechanical engineering, caused by what engineers call the "factor of safety," which is lower in the bicycle than in almost any other mechanical product. In high pressure guns the factor is even as great as twenty, which means that the guns are made twenty times as strong as is theoretically necessary for the strain they must bear. In boilers it is about six. in bridges usually five, and in almost every construction of machines it is at least four. These wide margins of extra strength are considered necessary as an offset to the defects in construction and material and errors in theoretical computations. Riders of wheels insist on lightness, and in the construction of the bicycle the factor of safety is reduced to a very small margin, being as low in some instances as 1·25. In view of this fact it is easy to understand why makers of high grade machines maintain such a rigid system of inspection in their works.