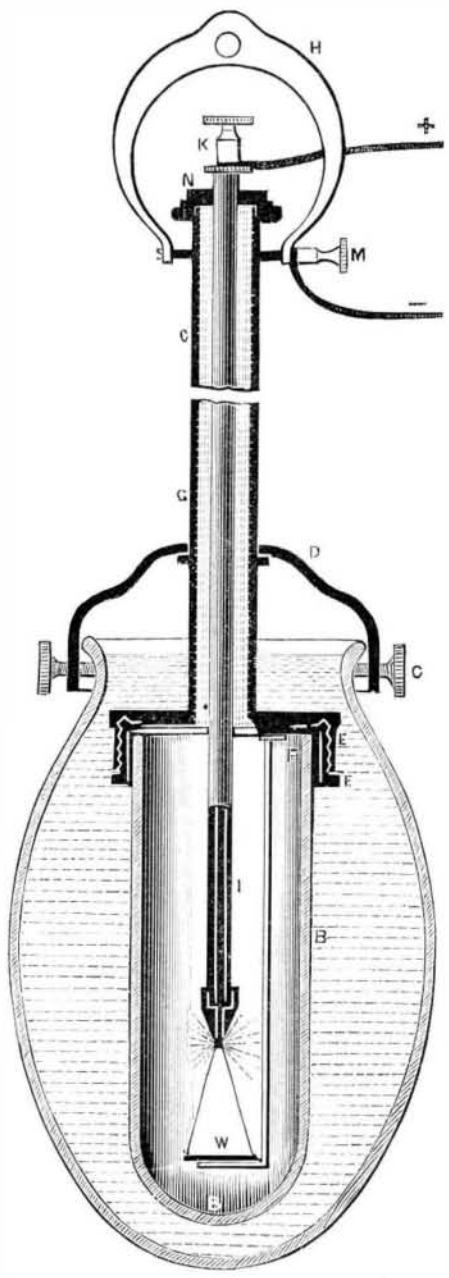
THE ANDRE-BROUGHAM ELECTRIC LAMP.

In the annexed engraving is a representation of an electric light invented by Professor André, who, with the assistance of the Hon. R. T. D. Brougham, has devised a lamp which is said to be very efficient. We take the following description from the *Engineer:*



THE ANDRE-BROUGHAM ELECTRIC LAMP.

The value of the improvement will at once be seen when we state that it reduces the carbon consumption to about 0·125 in. per hour, while a similar carbon burnt in a lamp open to the atmosphere burns about 6 in. per hour, the cost in carbons being thus reduced to 1-48th of what it would be in an ordinary lamp. This is, probably, a maximum reduction, inasmuch as the carbons in ordinary lamps are of a larger diameter, those used in the André-Brougham lamp being only 2 mm. diameter.

The improvement consists in surrounding the lamp, or a portion of it, with a separate vessel of glass containing water or some other suitable liquid. In the accompanying diagram, B B B is the glass globe of the lamp proper, A A the surrounding vessel containing the liquid. The shape of these vessels is immaterial. It may, perhaps, conduce to simplicity if the lamp is first described. Two concentric tubes (G G, I I I) are separated by a non-conductor, such as plaster of Paris. These tubes are connected to the two terminals of the battery by the binding screws, K M. The outer tube, G G, is in electrical contact with the pyramid shaped piece of metal, W. The inner tube, I, contains the carbon rod, which rests upon the metallic wedge and falls down by its own weight, and that of a small weight placed on the top of the carbon, but within the tube. No doubt the light is due partially to incandescence of the carbon, and partially to the formation of an arc. The cap, N, on the top of the tube, G G, through which the inner tube passes, is of vulcanite or other non-conducting material. Round the top of the lamp globe, B B B, is a metal cylinder to be screwed into the corresponding cylindrical E^1 E^1. The ring, E E, has a sharp edge at the top, while E^1 E^1 has a corresponding recess. Between the two is an India-rubber washer, F F, so that on screwing E E the India-rubber is jammed into the recess in E^1 E^1, and a good water-tight joint made. The lamp is fitted with a cap, D D, to which, by means of binding screws, C C, and clamps, the vessel, A, is fixed. This vessel is partially filled with water or other liquid, so that when in its proper position the liquid rises above the cap, E^1, thus rendering the permeation of air into the lamp an impossibility. So long as the liquid in A is above the cap, E^1, no atmospheric air can enter the lamp globe, B, a tight joint is obtained, and at the same time the heat from the lamp is carried off or dispersed, and the light more or less diffused.

Late Development of Sugar in Sorghum.

Dr. Collier, chemist of the Agricultural Department, explains the frequent failure of sorghum to yield a profitable quantity of crystallizable sugar by the results obtained by his experiment last year. His Chinese sorghum, for example, attained its growth, and to all appearance was ready for the harvest on the 6th of August; but an experiment on that date resulted in getting only one and eighty-five hundredths per cent of crystallizable sugar, with about five and fifty-five hundredths of glucose or uncrystallizable sugar, while three weeks later the percentage of crystallizable sugar had reached twelve and fifteen hundredths per cent, and the uncrystallizable matter was only three and forty hundredths per cent. This species of sorghum reached its maximum for profitable production on the 14th of October, on which date the percentage of crystallizable sugar was fifteen and five hundredths per cent of the weight of juice expressed.

Experiments with the early amber, the variety best suited to this latitude, began on the 18th of July, giving a result of four and forty-three hundredths per cent of crystallizable sugar, with three and seventy-seven hundredths of glucose. The percentage of crystallizable sugar rapidly increased until the middle of August, when it exceeded fourteen per cent. There was very gradual increase until the 29th of October, when it reached seventeen per cent of the juice expressed, the uncrystallizable sugar on that date being only one and ten hundredths per cent.

About a week previous to this date there was a severe frost, and cold weather continued for several days. During the time stalks were cut and experiments were continued, showing that the frost had no bad effect upon the crop. When a thaw came, however, the effect was immediately apparent in the rapid decrease of valuable matter and increase of worthless matter in the juice; and this effect was noticed in all varieties of sorghum. The inference, as drawn and stated by Dr. Collier, is as follows: "Let your crop stand as long as you can; but if a frost catches you before it is gathered, hurry up and get it squeezed before a thaw comes."

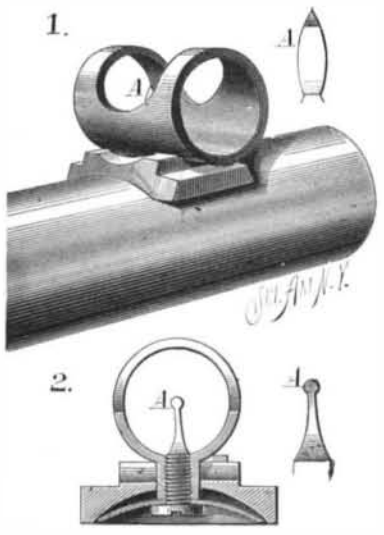
The Moss Industry in Louisiana.

The New Orleans *Times* says that the moss industry of that region has quite recovered its former flourishing condition. The moss is mostly gathered by negroes. Cypress moss is preferred, as it is the longest and most tenacious of all the varieties. After the moss is gathered it is placed on a sunny spot, and left a month to the action of wind and weather. At the end of that time the grayish bark peals off, leaving the hair almost clean. Some of the moss requires no manipulation, while other assortments are, in weight, more than half dirt. After being thus dried the material is sold to the plantation storekeeper or to the cross-roads grocery man, and the gatherer receives from one to two cents a pound for it, according to its quality. The stuff is baled and sent to New Orleans for manufacture. After the moss reaches the factory it is subjected to the action of the washer, which is a large cylindrical arrangement with a wheel inside, which pulls the moss hither and thither and dashes it through a vat of boiling water and soap, until the stuff is cleaned. Then it is hung out upon the racks to dry. This done, it is put into the duster, a fan mill, which entirely removes all the dust that may have survived the washing process. The moss comes into the factory yellow in color and goes out inky black. The article is then made up into bales, according to quality, and lettered with single, double, treble, and quadruple X's. The highest grade, XXXX, can hardly be distinguished from the finest and choicest horsehair. The other grades are consumed mostly in Louisiana. Seven years are required for the growth of a crop of moss after a tree has been stripped.

NOVEL SIGHT FOR FIREARMS.

The annexed engraving shows a new combination sight for firearms recently patented by Mr. O. D. Warfield, of Chicopee Falls, Mass. The invention consists in arranging its tube or cover of the sight so that it may be turned around on its base in such a manner that while in one position the sight or bead is seen by looking through the tubes the same as in an ordinary covered sight, and when turned in the other position the point of the sight is exposed uncovered.

Fig. 1 shows the sight attached to the barrel of a gun and turned so as to show the point of the sight, A. The shape of the sight as seen in this position is shown in the small detail view above the end of the barrel. The appearance of the sight when turned into the other position is shown in Fig. 2.



IMPROVED SIGHT FOR FIREARMS.

The tube which incloses the sight is held in either of its positions by concaves formed in the base piece at right angles to each other. The spring under the base draws the tube down into the concave and holds it accurately in position.

NOVEL SPEED REGULATOR.

The engraving shows a new combination of mechanism for regulating the speed of sewing machines and other light machinery. It consists of two conical drums, A B, journaled in a rectangular frame, with their larger ends oppositely arranged and their contiguous faces parallel.

A friction wheel, C, is placed between the two conical drums and journaled in a support attached to the end of a rod passing through the spring barrel, D. The shafts of the conical drums, A B, each carry a pulley, one to be connected by a belt with the motor, the other to be connected with the machine to be driven.

A cord is attached to the support of the wheel, C, for drawing it along between the drums, A B, so as to communicate motion from different portions of driving drum to different places on the driven, and thus vary the speed, making the speed of the driven drum either faster or slower than the driver.

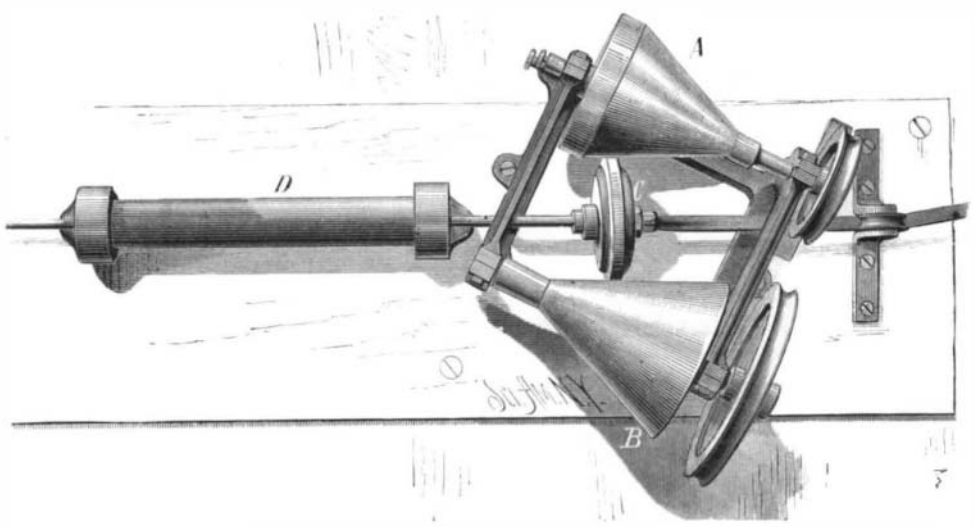
The bearing surface wheel, C, is made of rubber or similar material, and as it becomes compressed or worn, the difference in diameter is compensated for by moving the drum, A, longitudinally on its shaft.

The base of the cone, A, is cut away as shown, thus permitting the traveling friction, C, to stop the machine by disengagement.

This device is capable of controlling any speed within reasonable limits from 1 to 1,000 or 1,200 revolutions per minute. It can be used to stop and start, which it does instantly.

With this regulator when the speed is reduced the power is correspondingly increased, so that when a slow motion is transmitted it is with a great deal of force. This feature will prove particularly useful in that class of motors that obtain their power from the multiplication of small impulses, as in the case of small electrical or water motors.

Further information concerning this useful invention may be obtained by addressing Mr. H. R. Barnhurst, Erie, Pa.



BARNHURST'S SPEED REGULATOR.

Water System of New York.

During the past four years the Department of Public Works has added to the Croton Water Service 70 miles of distributing pipes, making the present extent of pipes 480 miles. The Croton aqueduct supplies 95,000,000 gallons a day. The elevated railroads consume over half a million gallons daily.

NEW PETROLEUM FIELDS.—It is reported that petroleum has been discovered in large quantities in the vicinity of Lake Ainsley, Cape Breton; also in Alabama.