Another New Atlantic Cable.

When the excitement in this country and Europe which attended the laying of the first Atlantic cable, and the doubt, delays, and misfortunes of that great enterprise, are contrasted with similar operations at the present time, we are enabled to realize the progress which has been made in telegraphy within less than a quarter of a century. The Anglo-American Telegraph Company has just completed the work of laying a new cable from Valentia to Heart's Content, and so much a matter of course has it become, and so certain and comparatively easy an operation, that it attracts scarcely any public attention. The newspapers record the fact in a news paragraph of a dozen lines, and scarcely an allusion is made to it in editorial columns.

These slender cords buried in the depth of the sea now connect every country of the earth, and the history of the preceding day at the Antipodes appears in the morning papers as regularly as the incidents occurring in the immediate vicinity of their publication. The electric telegraph has bound together the most widely separated sections of the earth, and has revolutionized the business and social systems of the world.

The Atlantic cable telegraph business has developed so enormously and is so rapidly and constantly increasing as to continually demand additional facilities, and these the Anglo-American Company promptly furnish. A few years ago one cable more than sufficed for all the business offered. The business was then an experiment, and the necessarily high rates charged for the service restricted the patronage to very limited proportions. From time to time, as experience enabled it to be done with safety, these charges have been reduced until, at the present time, messages are transmitted between this country and Europe at rates which would have speedily ruined any company a few years ago. It is true that the charges for cable telegraph service across the Atlantic are at present abnormally low (12½ cents per word) in consequence of bitter competition of rival companies, but even without such competition the service will hereafter be profitably performed at a cost to the public which, not many years since, would have been regarded as absurd and ridiculous to propose. This is made possible by improvements in the construction and operation of the cables. By duplexing the cables their capacity for the transmission of business has been practically doubled, and it is not regarded as impossible that their capacity may yet be still further largely developed.

The Anglo-American Company has now in operation four cables, and the Direct United States one, which by the successful application of the duplex system in working them afford facilities equal to what would have been realized with ten worked in the ordinary way. It is expected that these will adequately meet the demands of the public for some time to come. Should more be required, however, the managers of the Anglo-American and Direct Companies are prepared to supply them promptly, each company having wisely accumulated a large reserve fund for maintenance of existing cables, and providing new ones as required.

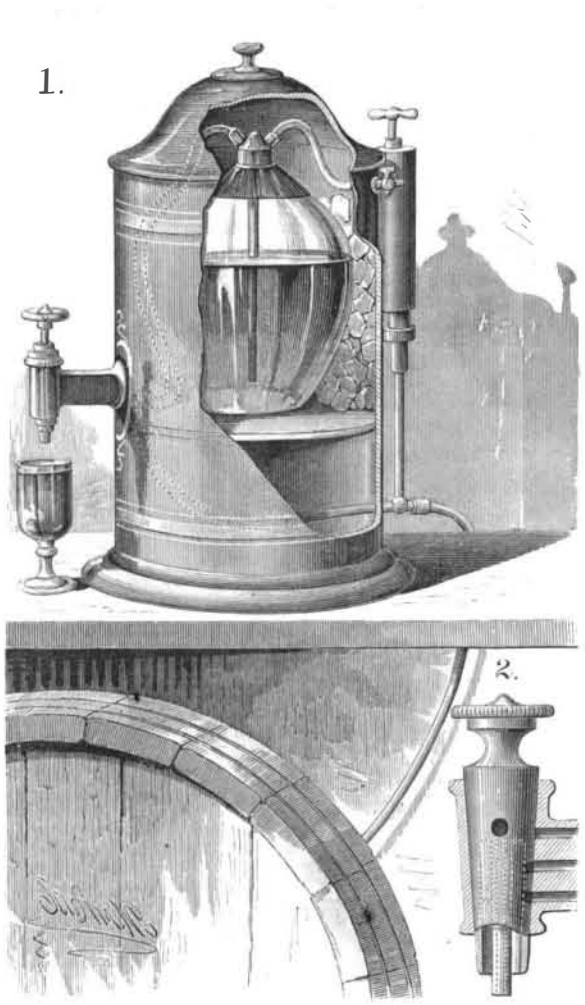
The efforts of the cable companies are liberally seconded by the Western Union Company, which is now engaged in building an entirely new line of the largest wire used for telegraphic purposes, which is to be quadruplexed and used exclusively for cable business.—*Journal of the Telegraph.*

A Chemical Lung.

On Wednesday, August 18, Dr. Richard Neale, in the presence of a number of engineers, including the manager of the underground railway, and other scientific men, gave an interesting and, as far as it went, successful demonstration of a scheme to purify the foul air of tunnels, mines, cabins, churches, theaters, hospitals, and other buildings. The proposal is, we believe, a novel one, and promises to create a new era in ventilation. Nearly all attempts hitherto made to purify the air in crowded buildings have been mechanical, and have consisted of driving out the foul air by currents of fresh air. Dr. Neale's proposal, on the other hand, is a chemical one, and is designed to destroy the poisonous gases. It is not, of course, intended to supersede ordinary ventilation by currents, but rather to act as an auxiliary. The essence of the scheme is the adoption of some simple chemical facts. As the lungs of living beings appropriate oxygen and give off carbonic acid gas, Dr. Neale proposes to make a "chemical lung" which will appropriate carbonic acid and sulphurous gases from the air containing them, without yielding any products in exchange. The air in the tunnels of the underground railway was referred to as a conspicuous and well known example of impurity irremediable by mechanical means. The principal deleterious gases in this instance are carbonic acid and sulphurous gases and carbonic oxide. All these, but especially the two former, may, Dr. Neale maintains, be easily got rid of by chemical means. By mixing a solution of sulphurous acid and water in a flask Dr. Neale made an excellent imitation of the air at the Baker street or Portland road station. He then added a small quantity of solution of caustic soda, and agitated the flask briskly for a few seconds, and immediately the sulphurous smell was abolished. Into the same flask a current of carbonic acid gas was next passed, so that a lighted taper introduced into the flask was at once extinguished. After a few shakings a lighted taper was again introduced and burnt with a bright, steady flame, showing that the soda had taken up the acid. Similar experiments were made with solutions of caustic lime. Dr. Neale said the facts illustrated in these simple experiments formed the basis of his scheme for purifying ordinarily impure air. As regards the Metropolitan and other underground railways, the locomotive engines might, he said, be supplied with a tank co ing a strong solution of caustic soda or lime, through which the smoke should be made to pass before being discharged into the outer air. By this means the carbonic acid gas and the sulphur would be eliminated. The carbonic oxide would require to be dealt with in another way, which need not now be explained. In order to attain further purification of the air in the tunnel, each train might be furnished with a truck open at both ends, and appropriately fitted with trays or other contrivances for holding solutions of lime or soda. As the train progressed air would rush through the tanks or trays, and be robbed of its carbonic acid and sulphur in its course. The proposal is as happy as it is ingenious. It further commends itself on the grounds of simplicity and cheapness. It only remains for those concerned, and we would especially indicate the directors of the underground railway and the managers of theaters, to manifest a proper public spirit, and fairly test its practicability. There should be no insuperable difficulty in putting it to a practical test. Meanwhile, we shall watch with interest any attempts that may be made to carry out the idea in detail.—*London Lancet.*

NEW BEER FAUCET.

Beer making and selling have attained an importance both in extent and pecuniary interest all over the world that ranks it among the greatest industries of the age. Malt



NEW BEER FAUCET.

liquors constitute the beverage of the multitude, and it is essential that these liquors be dealt out in a sweet and wholesome condition. All kinds of malt liquors that are beginning to sour, or have become sharp pricked or stale, are unwholesome, since these terms express the several stages through which all malt liquors pass by exposure to the atmosphere, from a palatable article to that of an offensive and dangerous one; hence various and often expensive devices have been resorted to, both to force beer from a cask without permitting its gas to escape, and to bring it from below up to a counter, none of which have hitherto answered a satisfactory purpose.

The improved beer faucet shown in the engraving is secured by three United States patents, and is patented in England, France, and Germany. Beer and other malt liquors, to be wholesome and properly preserved, must either contain or be capable of generating an amount of gas sufficient to empty the cask by its expansive force. Proceeding upon this proposition, which was found by numerous trials to be correct, it seemed manifest that to preserve such liquor from becoming stale and unwholesome it was only necessary to prevent the air from entering the cask and the gas from escaping from it, and apparatus, by which a glass of beer can be readily drawn from a fresh keg without waiting for the excess of froth to subside, is desirable.

The patentees of the faucet illustrated claim that they have succeeded in making such an apparatus, which, if adopted, would afford a great pecuniary benefit to the brewer in saving great numbers of long brass faucets, short and less expensive ones being as good, and largely avoiding the liability of empty beer kegs becoming sour and musty by exposure to the air before they are refilled; and it will secure to the retailer a great saving of time, and also the labor attendant upon the insertion and removal of vent valves, to say nothing of the great waste from the beer becoming stale.

This device may be either cheap or ornamental, and it is capable of preventing beer from becoming stale at any age, and it will bring beer that is fit to drink from the cellar without the use of a pump. It will also cool it without extra expense, since the ice that is used to cool drinking water also cools the beer. It can be readily applied to any faucet in a cask by means of a hose and coupling.

The engraving shows a sealed beer receptacle placed in the ice chamber of an ordinary water cooler. The faucet of the cooler, however, performs three separate functions: it will draw ice water from the cooler, it will take beer directly from the cask, or from the glass receptacle, as may be desired. The internal construction of the faucet is shown in Fig. 2. A model of this apparatus is on exhibition at the Inventors' Institute, No. 733 Broadway, New York.

Further information may be obtained by addressing Dr. A. J. Spencer, No. 115 W. 126th street, New York, or the Inventors' Institute as above.

THE AMERICAN SCIENCE ASSOCIATION.

The proceedings of the first two days of the Boston meeting of the American Association for the Advancement of Science were noticed last week. The early promise of a large and, in the fullest sense of the word, popular meeting was amply fulfilled. Nearly a thousand members were registered; 595 new members and 45 fellows were elected, among them Mrs. E. A. Smith, of Jersey City, the first lady thus honored. The number of papers entered was 280. A very active interest was manifested in the proceedings throughout, and the hospitality of the people of Boston and the surrounding towns was unbounded. Boston and its vicinity are rich in institutions, manufactories, pleasure resorts, and points of historic interest, and not a few of the members found these sources of pleasure and profit unsurpassed even by the regular proceedings of the association.

Comparatively few papers were read before the general sessions, the attendance being so large and the number of papers so great that most of the work was done in the sections and subsections. In view of the increasing size of the annual gatherings the committee on membership reported in favor of extending the scope of the association, recommending that instead of two sections with subsections, as at present, the association should have eight, as follows:

A—Physics. B—Astronomy and Pure Mathematics. C—Chemistry, including its applications to agriculture and the arts. D—Mechanical Science. E—Geology and Geography. F—Biology. G—Anthropology. H—Economic Science and Statistics. It was also recommended that there may be a permanent subsection of microscopy, which shall elect its own officers, and be responsible directly to the Standing Committee, and that the Sectional Committee of any section may, at its pleasure, form one or more temporary subsections, and may designate the officer thereof. The report will be acted upon at the next meeting.

Among the other reports of special committees two were of general interest. The report of the Committee on Science-teaching in the Public Schools has been noticed elsewhere. The committee to memorialize Congress and State legislatures regarding the cultivation of timber and the preservation of forests recommended a law to protect trees planted along highways, and to encourage such planting by deductions from highway taxes; also the passage of a law that shall exempt from taxation the increased value of land arising from the planting of trees where none were growing to such period as may appear proper, or until some profit may be realized from plantations; by appropriations of money to agricultural and horticultural societies, to be applied as premiums for tree-planting, and for prizes for the best essays and reports upon subjects of practical forest culture; by encouraging educational institutions to introduce courses of instruction having reference to practical sylviculture; by laws tending to prevent forest fires; by imposing penalties against willful or careless setting of such fires, and enlarging and defining the powers of local officers in calling for assistance and in adopting measures for suppressing them; by establishing under favorable circumstances model plantations; by the appointment of a Commission of Forestry under State authority analogous to the Commission of Fisheries.

The cable message to the British Association, previously referred to, received a cordial answer returning thanks therefor. A message of congratulation was also sent to the venerable M. de Chevreul, senior member of the French Academy, on his 95th birthday.

The officers elected for the next meeting, in Cincinnati, to begin August 17, 1881, are: President, Professor G. J. Brush, of New Haven; Secretary, Professor C. V. Riley, of Washington; Treasurer, Professor W. S. Vaux, of Philadelphia; President of Section A, Professor A. M. Mayer, of Hoboken; Secretary, Professor John Trowbridge, of Cambridge; Vice-President of Section B, Dr. George Englemann, of St. Louis; Secretary, Professor William Saunders, of Canada; Auditing Committee, Professor Henry Wheatland, of Salem, and Professor Thomas Meehan, of Philadelphia.

In the permanent subsection of Chemistry, Professor William Ripley Nichols, of Boston, was elected Vice-President, and Professor H. W. Wiley, of Lafayette, Ind., Secretary. In the permanent subsection of Anthropology, Colonel Derrick Mallory, of Washington, was elected Vice-President,

and Judge J. G. Henderson, of Winchester, Ill., Secretary. A resolution providing for a social reunion of the sections on the second evening of future meetings was adopted.

As already remarked, the most of the papers were read in the several sections and subsections. It would not be possible within the scope of this article even to mention them all by title. A few of those of most general interest may be noticed. In Section A (Physics) Professor A. M. Mayer described the construction and use of the topophone, with which our readers are already familiar. Professor A. Graham Bell presented his new invention, the photophone, the nature and use of which was described last week. Mr. A. P. Dudley, of this city, read a practical paper on "Transportation Expenses and their Reduction," and gave the results obtained by his invention, the dynograph, designed to test questions in regard to the economical handling of railway trains. This instrument shows that on ordinary roads it is more economical in fuel to run freight trains from eighteen to twenty miles per hour than at ten or twelve. It shows the largest types of engines to be most economical, hauling greater loads per pound of coal, reducing the ratio of train expenses per ton carried. Also, that the dead weight per car, per ton capacity of freight, should be reduced to the lowest limit consistent with safety, as it costs proportionately more to haul empty cars than loaded ones.

Mr. Wm. H. Ballou, of Chicago, read a paper on the "Mississippi River Improvement System." A hint of the magnitude of the problems involved was given in the shifting of the course of the Mississippi at Cairo, Ill., a mile in one year. Still more remarkable than this are the operations of the Missouri River. At one time Council Bluffs enjoyed its presence in immediate proximity to the city and the benefits of its commerce, in consequence of which the city became the terminus for the Western railways in preference to Omaha, three times its size. These railroads erected depots and stationed the offices of the general Western superintendents here. The Union Pacific road constructed an immense bridge here, and in common with other railways built a union depot at Council Bluffs. No sooner had this work been completed than the Missouri performed the unexpected feat of moving its channel over to Omaha, three miles away.

Mr. E. B. Elliott, of Washington, read a paper on "Electric Lighting as applied to Large Areas;" Mr. C. J. H. Woodbury one on "Friction and Lubricating Oils;" Professor B. F. Hedrick, of Washington, on "Patent Laws as a Means for the Advancement of Science." Of scientific papers less obviously bearing upon practical affairs the number was large—too large for their reviewing here.

In the subsection of Chemistry a valuable paper on "Laws Governing the Decomposition of Equivalent Solutions of Iodides under the Influence of Actinism" was submitted by Professor A. L. Leeds, of the Stevens Institute. Professor A. A. Breneman, of Cornell University, exhibited samples of common stoneware, hitherto decorated only in blue, on which he has been able to obtain a wide range of colors. On one specimen vase a vine in green was painted upon the ordinary gray body of stoneware. This cheap ware may in this way be made the basis of a new process of underglaze decoration in which the entire piece—color, glaze, and body—is completed at a single burning. The theory of the new process rests upon the thickness and comparative impressibility of the glaze. A note on "Water Analysis" was read by the same gentleman.

Mr. H. W. Wiley, of Lafayette, Ind., read a practical paper on the "Manufacture of Glucose." Professor S. B. Sharples showed a method of testing sugar and molasses; Mr. E. T. Cox discussed the "Oxide of Antimony found in Extensive Lodes in Sonora, Mexico;" J. C. Kleinschmidt read a paper on "Foreign Substances in Iron;" and Professor T. Sterry Hunt one on the "Genesis of Certain Iron Ores."

Section B (Natural History) gave evidence of great activity in this field of science. The subject of "Biological Development in the Animal Kingdom, as Manifested in the Paleontological and Embryological Study of Sea Urchins," was illustrated at great length by Professor Alexander Agassiz; and Professor A. Hyatt found a practical illustration of the "Theory of Evolution in the Transformation of the Planorbis." Incomplete adaptation, as illustrated by the "History of Sex in Plants," was treated by Mr. L. F. Ward; and the "Evolution of Parasitic Plants," by Mr. Thomas Meehan. Dr. S. V. Clevinger submitted a less popular communication on the "Plan of the Cerebro-spinal Nervous System." The "Economic Aspects of Natural History" were touched upon by Professor T. J. Burrill, of the Illinois Industrial University, in a paper on the microscopic cause of "fire blight" in pear trees and "twig blight" in apple trees. Also by Professor Riley in a paper on the "Cotton Worm;" and by Mr. A. J. Cook, who described two new methods of fighting injurious insects. The papers in the subsection of Microscopy were chiefly such as were of interest solely to the specialists of that department.

The papers in the subsection of Anthropology were many and rich in curious information. The "Ethnology of Africa" was discussed by Professor A. S. Bickman. The Myths, Folklore, Language, and Games of the Iroquois Indians, were learnedly discussed by the only lady fellow, Mrs. E. A. Smith. Colonel H. B. Carrington read an interesting paper on the "Dakota Tribes." Judge Henderson described the textile fabrics of the ancient inhabitants of the Mississippi Valley. In explaining the textile art among the mound-builders and other ancient American aborigines, he showed that the modern Indians and these ancient people are bound together by a similarity in instruments and processes of spinning and weaving. The material used was the bush of various trees, nettle, and the hair of the bear, buffalo, deer, and dog. In working up vegetable substances, the bark was first macerated, and, after being dried, it was spun in a multitude of ways. The rudest process was rolling on the thigh. The next improvement was a rude spindle, which passed through various processes of evolution to the modern spinning wheel. The gradations of elaboration through which the loom has passed were illustrated by a series of drawings, collections of raw materials, and models of spindles and looms.

Mr. William McAdams described the agricultural implements of stone anciently employed by the natives of the same region, and Mr. F. W. Putnam spoke of the conventional ornamentation of ancient American pottery. In a paper on ancient quarries of Oriental alabaster and flint in the West, Rev. H. C. Hovey described and illustrated by maps, diagrams, and specimens, some remarkable discoveries made by him in Wyandotte Cave, Indiana. Professor E. S. Morse gave an instructive account of his investigations among the shell heaps and caverns of Japan.

In the subsection of Geology Mr. N. H. Winchel read a paper on "Capriferous Series in Minnesota," and Alexis A. Julien gave a description of the excavation of the upper basin and clove of the Kaaterskill (Catskill) Mountains. L. W. Bailey reported the progress of the geological investigations in New Brunswick in 1879 and 1880, and was followed by H. C. Lewis, upon the "Tertiary Age of Iron Ores of the Lower Silurian Limestone Valleys." Professor Silliman spoke upon the turquoise localities of Las Cenillos. Other contributions to this subsection were: "Granites in the White Mountain Notch upon Mount Willard and their Contact Phenomena," by George W. Hawes; "Eruptive Rocks of Mount Ascutney," by Professor C. H. Hitchcock; "Coals of Galisteo, New Mexico," by Professor B. Silliman; and "Auriferous Gravels of the Upper Rio Grande in New Mexico," by the same.

Sugar Making in Louisiana.

At a recent meeting of the Sugar Planters' Association in New Orleans, the following paper was read by Mr. Mason:

"During the last decade there has been an anxious inquiry from planters and others interested in sugar culture as to the possibility of a more complete and thorough extraction of the saccharine contained in the cane without the attendant injuries that previously followed all former efforts wherein 'inversion' proved so serious an obstacle, and which cast a doubt on extreme extractions ever being rendered profitable to the planters' interests. In Mr. Bouchereau's report of 1870–71, Mr. Edw. D. Seghers queries: 'Whether or not it would pay to throw away our sugar rollers and adopt the system of drawing the juice by the action of hot water, as patented lately in Germany?' Whether this was the first keynote on diffusion, I do not know. I merely mention this item. In 1872–73, Mr. M. S. Bringier, with Dr. J. Albrecht, made experiments on that principle. The 'Mason saturator' was also experimented with this year.

"In 1873–74 Mr. Bringier and Dr. J. Albrecht tried again with a different machine, also the Robert diffusion, at Belle Alliance, and the Mason saturator at the Beka. In 1874–75 Mr. Bringier and Dr. J. Albrecht used another different machine. The Robert diffusion was again used and the Lovejoy-Luling apparatus for diffusion. In 1875–76 the Robert diffusion was inaugurated at the Louisa, and it was said that splendid results were obtained. The Mason saturator was removed to Mr. Spangenberg's, at La Freniere, and Mr. Von Phul reintroduced the Payen jets of steam through the turn plate to the partly crushed cane. In 1876–77 the Robert diffusion, the Mason saturator, the Von Phul, also a nine roller mill of Mr. Bringier and Dr. J. Albrecht, were worked at the Corrinne. In 1878–79 the Robert diffusion, the Mason saturator, and the Von Phul were used.

"In 1879–80 Mr. Bringier, with Dr. J. Albrecht, tested the eleven roller mill at Mr. Godberry's. The Mason saturator and the Von Phul were also used. The Robert diffusion of 1873 produced a yield of molasses of 180 per cent to every 100 barrels of sugar. In 1874 the molasses showed 85 per cent, while in 1875 it was reduced to 61 per cent. The yield of the Mason saturator in 1876–77, according to the *Price Current* yearly report, was 37·5 per cent of molasses. In order to compare this, I have taken the returns of nine prominent plantations, taking the Spangenberg place as the center, so that they shall then range equally as to ripeness of the canes, action of frost and temperature, they all having superior means of evaporation over the evaporators used there, without taking into consideration the excessive strain used on the three roller mill causing its detention for repairs, the souring of its sirups, and the other difficulties encountered by the use of a vacuum from where kettles were used before.

"Grinding commenced in November and was completed in or about the third week of January. This average of the nine plantations amounted to 54·3 per cent, showing 16·8 per cent in favor of the Mason saturator. In 1877–78, that disastrous year to planters, the percentage stood for the Mason saturator at 57, while the nine plantations stood at an average of 113 per cent. The immature canes of this year would, if 'inversion' was the characteristic of the 'saturator,' certainly have condemned its future use. But from this date a change of yield appears: emasculation and interference have somewhat changed its features.

"The yield of Mr. Wilkinson's five roller mill, with his triple effet, stands at 41 per cent, while Mr. Geo. Garr's, with Rillieux apparatus (triple effet), stands at but 30 per cent of molasses to the sugar. I also find that the Howard and Morris mills at the Ashton plantation show a percentage of 42 to the yield of sugar. The yields of juice at the Yale Mill are 64·27; Mr. Wilkinson's, 72·70; and Mr. Godberry's, 68·86.

"I will now state the yield of molasses to the sugar, according to Mr. Bouchereau's report, during the last decade, as follows, as it will tend to show in a measure the maturity of the cane, also the progress made in the introduction of the vacuum pan into the sugar house: In 1870–71 crop, 70 per cent of molasses and 53 vacuum pans. In 1871–72 crop, 86 per cent of molasses, 58 vacuum pans. In 1872–73 crop, 81 per cent molasses, 56 vacuum pans. In 1873–74 crop, 91 per cent molasses, 55 vacuum pans. In 1874–75 crop, 94 per cent molasses, 52 vacuum pans. In 1875–76 crop, 76 per cent molasses, 57 vacuum pans. In 1876–77 crop, 73 per cent molasses, 65 vacuum pans. In 1877–78 crop, 111 per cent molasses, 64 vacuum pans. In 1878–79 crop, 64 per cent molasses, 86 vacuum pans. In 1879–80 crop, 71 per cent molasses, 108 vacuum pans. The yearly average of molasses to sugar, for the decade, being 81·7 per cent. Considerable increase in vacuum pans commenced in 1876, amounting at present to 108, showing an addition of 51. It must be also borne in mind that during this time many old Rillieux pans have been broken up. By information kindly rendered, I find that Messrs. Shakespeare & Smith are erecting for this coming crop a vacuum pan for Mr. Ware, Iberville, and one for Mr. Von Phul, East Baton Rouge; and Messrs. Leeds & Co. are manufacturing them for a number of planters—an addition of 10 vacuum pans for this coming crop of 1880–81, which will give a total of 118 vacuum pans to our State. I did not think it necessary to note each year other evaporators, but it may be as well to state that in 1870 there were 868 kettles, 95 open pans, and 11 Escudier evaporators; 1,105 sugar-houses were in operation, of which 837 were steam and 268 horse power. In 1880 there are 816 kettles, 122 open pans, and 11 Escudier evaporators in 1,111 sugar-houses, of which 837 are steam and 274 horse power, a difference of 6 horse power sugar-houses. In 1870 there were 78 portable mills; in 1879 there were 54 portable mills.

"In the special mention of the Howard and Morris mill by the *Price Current* report, it says, in speaking of the second experiment, there were 181,789 pounds of sugar, and the estimate of the molasses was 46 gallons to 1,000 pounds sugar, 53 per cent, while the general yield of the crop in the column shows but 42 per cent. The Canal Bank having purchased the 'La Freniere,' arrangements have been made to run the Mason saturator this season, so that no doubt may exist. The Roberts diffusion apparatus is being broken up. As to the fate of the others, I have no information."

ENGINEERING INVENTIONS.

Mr. Christian W. Hergenroder, of Baltimore, Md., has patented a surveying and plotting instrument whereby a given route or boundary may be rapidly surveyed and plotted mechanically. In the old mode of surveying on foot only about four miles per day can be accomplished, by reason of the necessarily slow progress which the details of this method permit. This invention contemplates measuring and recording distances, with the curves, and also the elevations and declinations, with as great rapidity as the route can be traversed in an ordinary wheeled vehicle.

Mr. William L. Fisher, of South Saginaw, Mich., has patented an improvement in that general form in which a dog or tumbler holds up a shouldered pin until the dog is struck by the entering link, at which time the dog is removed from the shoulder of the pin and the latter falls of its own weight through the link to effect the coupling of the cars. The invention consists in so constructing the shouldered pin and the dog, and relatively arranging these parts in the draw head, that the shoulder on the pin not only affords a bearing for the dog in holding up the pin, but also, when the pin is down, serves as bearing, which rests directly upon the rounded end of the link and holds the latter in horizontal position while coupling with another drawhead.

Messrs. Alexander K. Suddoth and William L. Canfield, of Friar's Point, Miss., has patented a simple and efficient device for loading wagons, storing goods in warehouses, etc. It consists in the combination of a windlass and a car or carriage with ordinary skids.

An improved apparatus for compressing air has been patented by Mr. Robert M. Catlin, of Tuscarora, Nev. This invention is primarily an improvement in apparatus for elevating water by the direct action of compressed air, such as shown in letters patent granted to the same inventor, No. 221,778, November 18, 1879, but contains features that are applicable in connection with any steam or air engine.

Mr. William Freienmuth, of Lawrence, Kan., has patented a millstone and spindle adjusting device, that will enable the miller to detect at any time if the lower stone is out of level or if the spindle is not at right angles with the grinding surface of the stone, and enable him also to adjust both lower stone and spindle correctly while at work.

HON. W. D. BISHOP, formerly Commissioner of Patents, and more recently President of the New York and New Haven Railroad, has a carriage mounted on bicycle wheels with India-rubber tires. The wheels were made by the Pope Bicycle Manufacturing Company, and are of steel, nickel plated.